

THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
Railway Engineer • TRANSPORT • The Railway News
The Railway Times • Herapath's Railway Journal • RAILWAY RECORD.
RAILWAYS ILLUSTRATED • ESTABLISHED 1835 • RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W. 1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: WHITEHALL 9233 (6 lines)

Annual subscription payable in advance and postage free:
British Isles and Abroad £2 5s. 0d.
Single Copies One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 74 No. 3

FRIDAY, JANUARY 17, 1941

CONTENTS

	PAGE
Editorials	57
Publications Received	61
The Scrap Heap	61
Overseas Railway Affairs	62
New American 4-8-4 Type Locomotives	63
New Series Portable Electric Drills	67
Railway News Section	69
Personal	69
Indian Railway Conference Association	72
Transport Services and the War	74
Notes and News	79
Railway Stock Market	80

INDEX

An index to the seventy-third volume of THE RAILWAY GAZETTE covering the issues from July 5 to December 27, 1940, has been prepared, and is now available free of charge on application to the Publisher

TO CALLERS AND TELEPHONERS

*Until further notice our office hours are :—
Mondays to Fridays – 9.30 a.m. till 3.45 p.m.
The office will be closed on Saturdays*

DISPATCH OF "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 of 1940

Impending Railway Dividends

ON February 19 the railway companies will announce their revenues and dividend payments for the year 1940. In Stock Market circles it has been recognised for some time that forecasts of the manner in which the financial agreement entered into between the Government and the railways for the period of control indulged in when the terms were first announced last February were unduly optimistic. The working of the agreement for the first full financial year it has operated has not been such as to engender hopes of any generous return to proprietors of the railways. Constant and heavy rises in operating costs have undoubtedly offset to a very large extent the great increase in the work which the lines have been called upon to perform. Although it was a basic provision in the agreement that increases in costs should be offset by adjustments in charges, in practice there has been a considerable time lag in implementing this feature of the agreement, and to this extent the companies have had to carry the burden of greater operating expenditure. In the result it would seem unlikely that net revenues and dividend payments will show much, if any, improvement on those a year ago. The Government guaranteed net revenue for a full year is £40,000,000 and for the first half of 1940 the companies returned a total of £20,867,000. In the second half of the year the lines were operated much more intensely than in the first half, and no doubt gross receipts rose appreciably. But the companies have also had to face the cumulative effect of rises in wage and material costs.

* * *

Modest Returns

A year ago Great Western ordinary stockholders received 3½ per cent. which compared with 3·3 per cent. available under the guaranteed minimum and with the 4·6 per cent. which would be earned if the total in the pool was £43,500,000—the second stage in the financial agreement. L.M.S.R. ordinary got 1½ per cent. against 1 per cent. under the minimum and 2·3 per cent. at the second stage, and L.N.E.R. second preference only ¾ per cent. which goes against 1·2 per cent. and 2·5 per cent. Southern deferred received 1¼ per cent. which goes against the 0·8 per cent. at the minimum and 2·7 per cent. in the second stage. During 1939 the pool was in operation for only three months of the year. It is probable that the earnings statement to be made next month will show net revenue again not much ahead of the minimum guarantee. In the meantime the clause of the agreement relating to war damage, which permitted the companies to charge the first £10,000,000 against the pool, has been rendered ineffective by the decision of the Government that the railways are to be made parties to the national insurance plan. The Bill, which contains the special provisions relating to railways and similar undertakings, has not yet been made public. Experience of the full year's working of the railway agreement does not suggest that the return to railway stockholders will be other than meagre—a condition of affairs to which unfortunately they have long been accustomed.

* * *

Machine Tools in War Effort

The output of the machine tool trade in the United States, which was put at \$170,000,000 a year before the war, is estimated to reach a yearly turnover of some \$600,000,000 by September of this year. Despite the magnitude of this planned expansion the trade in the United States is being called on for still greater exertions, for it is fully realised in America that the machine tool trade constitutes the main basis of that country's armament effort. In Great Britain it is equally true that our war effort depends very largely on the machine tool trade, but our requirement is both more critical and more urgent. Mr. P. H. Mills, Controller of Machine Tools, has circularised machine tool and jig, tool, and gauge makers, pointing out that from the time rearmament started the industry in this country has responded in fine fashion to the demands made upon it and is continually expanding, but that it is necessary still to persevere. Mr. Mills estimates that another 15,000 operatives, men and women, are required in the industry as soon as possible. This means that employers

in this industry should undertake the training and employment, on a general basis, of three more operatives for every ten at present employed. The difficulties that some machine tool undertakings have in employing women are recognised, but in view of the urgent calls upon man power it is essential that the claims of women to be employed in the national effort should not be overlooked.

Transport of Roumanian Oil to Germany

Illumination was thrown upon the much discussed question of Roumanian oil supplies and their availability to Germany when Mr. H. G. Austin spoke to the Fuel Luncheon Club in London last week. Mr. Austin, after many years spent in the oil industry in Roumania, has only recently returned to this country, and is equipped with first-hand knowledge of the situation, the most comforting aspect of which, as our summary of his address on page 77 shows, is that the normal outlet for 85 per cent. of Roumanian oil, through the Black Sea port of Constanza, is now blocked. Local storage capacity being limited, this means that only about 15 per cent. of the ordinary production is possible unless the other outlets are supplemented. At the moment the Danube route inland, which can handle 10 per cent. is closed by ice, leaving only the railways, of which there are but two now in use, capable of transporting the remaining 5 per cent. if the recent earthquake has not reduced their capacity. Along the third main railway route, that *via* Cernowitz and Poland, no oil has been transported for more than a year past. In assessing the situation, however, the ability of German engineers to increase rail capacity must be taken into account. An idea of what they can do when necessity drives may be gained from contemplation of the feat of doubling, in a period of only some six months after the *Anschluss*, of the 50-mile single line between Passau, on the former Austro-German frontier, and Wels, on the Salzburg—Vienna main line.

Improved Booking Arrangements at York

At the beginning of December last the whole of the booking office arrangements at York were reorganised internally and externally. The outward sign of the change was the substitution of an alphabetical system of window allocation for the previous geographical method. This means that three out of the seven booking office windows have been lettered as follows: "Stations A to K, also Leeds and London"; "Stations L to Z, including Leeds and London"; and "Navy, Army, R.A.F." The remainder of the windows are kept in reserve to be used during rush periods. The indications are cut out in stencil form in the boarding which now forms the front of the office, and, as under present conditions the office is constantly lit by electricity, the new signs show clearly into the circulating area. As they are also somewhat lower down than the old indications, they strike the eye of the passenger waiting for a ticket and thus serve to guide him to the right window. The new system is working well and has already been the subject of appreciative comment from the public.

Alphabetical Booking Office Indications

The alphabetical system of booking office indications now adopted at York is by no means new to this country, having been in use for a considerable time at several L.M.S.R. stations, *e.g.* Stoke-on-Trent and Huddersfield. It is believed, however, that York provides the first instance of the application of the system to an L.N.E.R. station and the experiment will be watched with interest with a view to its possible extension elsewhere. It is a system which can be applied with advantage only at stations of a certain size and where working and geographical conditions standpoint are suitable. The L.N.E.R. has made the change for a variety of reasons, most of them connected with the internal working of the office. When the new glass-fronted booking office of York was brought into use a few years ago the indications by which travellers were guided to the various windows were geographical, such as "North and Newcastle" and "Midlands and West Country," and passengers were

directed to their windows by a system of numbers which would appear on the indicator according to the pressure of traffic at the time. The war involved the withdrawal of the whole of the glass from the front of the booking office, and also brought dim light in the circulating area during blackout hours, and a greatly reduced daytime light owing to the roof being covered by opaque material in place of glass. As a result the old form of indication became difficult to read and passengers frequently did not apply for tickets at the appropriate window.

More Transport Criticism

In *The Economist* of January 11 great pains are taken to show that a bottleneck has developed in British transport and that this is having gravely adverse effects on the war effort. The remedy suggested is that all the transport facilities of the country should be treated as a single system with various branches. The transport problem, it is declared, should be approached quantitatively instead of financially—not a very clear expression, but somewhat elucidated by the further statement that the chief defect of the railway agreement is that it stresses the need for making the railways pay. That of course is a matter which was decided by the Government and which has been endorsed by two Ministers of Transport, no doubt with higher authority. There is hardly likely to be much support for the suggestion that "the railways, whose spokesmen have the strongest voice at the Ministry of Transport" regard any transfer of traffic as an encroachment on their rights, for in the present emergency there is good reason to believe that national interest override sectional desires. There is ground for arguing for a better co-ordination of all forms of transport—that has been the endeavour of the railways for many years—but whether it would be achieved on the lines postulated in *The Economist* is more than doubtful. Suggestions for drastic rationing of available transport, a system of priorities (the author disregards steps which have already been taken to this end), the pooling of road vehicles, including traders' private vehicles, are easier of enunciation in general terms than of practical application. The author does not define "essential traffic" although he refers to it several times. In modern war the term may be broad enough to cover a vast range of goods and persons, but, as in other sections of the article, an attempt at clearer definition might throw into relief greater obstacles than the general terms employed.

Railway Labour Conditions in Eire

In an agreement made by the Great Southern Railways in February, 1935, with seven trades unions dealing with men employed under shop conditions in the locomotive department, it was settled that the hours of duty for the men concerned (who, of course, were not members of the conciliation grades) should be 47 hours a working week. When the company was obliged to curtail the work at the Inchicore locomotive, carriage, and wagon works to a four and a half day week the National Union of Railwaymen brought an action against the company, maintaining that the 47-hour week constituted a guaranteed week and Mr. Justice Black, in the High Court, gave judgment in favour of the union. This decision meant that the company could not place the men on short time without agreement, and to overcome the difficulty, notice of termination of the agreement has been issued by the company. The case has been very clearly stated for the Great Southern Railways by the General Manager, Mr. W. H. Morton, in a letter to the unions. He states that the only alternative to reducing the weekly working hours when necessary is to dismiss men outright instead of reducing the hours of work all round, but he points out that if the unions accept the contention that the 47-hour week refers to the basis of payment of wages and does not constitute a guaranteed week the company is willing to withdraw the notice terminating the agreement which would then be interpreted as contended by the company. A further letter to the unions stated that the company was also serving notice of appeal against the judge's decision, but here again Mr. Morton states that if the unions agree that the length of the working week must always be dictated by the amount of work available and the finances of the com-

pany at any given time it would be unnecessary for the company to proceed with the appeal.

Centenary of the Semaphore Signal

The present year witnesses the centenary of the introduction at New Cross, on the London & Croydon Railway, by Charles Hutton Gregory, of the semaphore as a railway signal, encouraged by its success for message work in the Navy. Although the word itself does not signify any particular design, it had been given to the arm type of visual telegraph constructed by Chappe in France in 1792, and has since by general consent retained this special meaning. Other types of signal—discs principally—have remained popular in a few countries, but the semaphore has been much more used than any of them, due to its simplicity, ease of working, and readiness with which it can be combined and grouped. Gregory's very natural adoption of three positions in the lower quadrant for time interval working, led to downward moving arms being long standard in Great Britain, but in others the upper quadrant arm early became general. Now, a century later, semaphores and discs are giving place to colour and position lights. What will be the fashion in 2041? Universal continuous cab signalling?

Mexican Railway Results

The report of the Mexican Railway Co. Ltd. for the half-year ended June 30, 1940, shows that, instead of the profit obtained in the corresponding half-year of 1939, a serious loss has been sustained, due to a falling off in goods traffic of 331,000 pesos. There was also a decrease of 55,000 pesos in passenger traffic, attributed to the decline in tourist traffic from the U.S.A. Working expenses, in spite of less work performed, showed an increase of 188,000 pesos, and the total was the highest reached in the history of the company. Comparative figures for the first halves of 1939 and 1940 follow:—

	1939 pesos	1940 pesos
Passenger and express receipts	2,080,338	2,019,266
Goods and live stock receipts	6,154,758	5,774,658
Gross receipts	8,380,762	7,924,977
Working expenses	8,067,036	8,255,984
Profit (+) or loss (—)	+ 313,726	— 331,007

At the standard rate of 18 pesos to the £ the deficit is equivalent to £18,389 and the total deficiency for the year is £119,332, which increases the total debit of net revenue to £1,419,451. During the current half-year the results of the months of July and August show but little difference compared with the same months of 1939, the falling off in receipts being almost covered by a reduction in the expenditure.

Should Local Passenger Travel be Free?

One of the many difficulties of local travel resulting from the increasing size of modern towns is that persons not living near their work are penalised by having to pay a comparatively large proportion of their income in essential daily travel. In many parts of the world this situation is met, at any rate in part, by a "universal fare" for local transport, such as has applied in New York, and indeed in most of the large towns in the U.S.A., and also on the Paris Metro. Increasing operating costs since the war of 1914-19, and the further extension of such systems into more distant suburban areas have tended to result in the establishment of graded fares for longer distances, thus destroying the absolute equality applying to all suburban residents. An interesting suggestion to solve passenger problems was put forward recently by Mr. S. Gordon, a local Ford agent, Bolton, Lancashire, in the discussion after an address by Mr. A. A. Jackson, the Manager of Bolton Municipal Transport, when he advocated giving free transport and charging the cost to the rates "just as other public services." In this way, he said, the cost of printing millions of tickets would be saved, office staffs could be reduced, and inspectors could devote themselves to seeing that vehicles ran at regular intervals. The cost of the innovation would be spread equitably over all ratepayers in the same way as education and street maintenance or repair, and the speaker concluded that if it was objected that everybody did not use transport, it could be replied that neither did all families use the schools.

The Location of Marshalling Yards and Exchange Sidings

POSSIBLY the biggest problem which the 1923 amalgamations set for railway operating officers was the welding of the "constituent" undertakings into one "amalgamated" transport organisation. Each of the constituent undertakings was laid out for operation as a self-contained unit, and its marshalling, etc., yards were schemed accordingly, exchange accommodation being provided at suitable contact points with the other railway companies, including, of course, those with which it became amalgamated in 1923. No doubt, after the amalgamations, a study of the altered conditions indicated that advantages would be obtained by re-diagramming train services, both passenger and freight, and reducing, if not abolishing, the exchange of traffic which had taken place previously between the constituent undertakings, because of the opportunity afforded to arrange through workings. The extent to which advantage was taken of this opportunity, and the degree to which the existing traffic yards, etc., proved, from the standpoints of location, adequacy of the layout, etc., suitable for the most economic traffic operation of the amalgamated railways is, no doubt, known only to the officers directly concerned. The full story would make instructive, as well as interesting, reading to all railway students and might be made the subject of a paper (perhaps it would mean several papers) before the Institute of Transport. It would be an extraordinary thing if, in all cases, the location of the traffic yards established by the old constituent undertakings were found to be satisfactory under the altered conditions.

The fact of this problem having existed in the past is brought to mind by the amalgamation of the working of the four main-line companies' undertakings (together with the L.P.T.B.) under the control of the Railway Executive Committee as Agents for the Minister of Transport, and by the interest which is being taken in the services afforded by the railways in the present emergency. A very large, and interesting, field of thought is opened up as to the possibilities in present circumstances. In our view further amalgamation, let alone "nationalisation" would not be in the national interest. It would be a misfortune if either step were taken merely to give effect to improvements in working which could just as well be accomplished under the present organisation. The problem is similar to, but on a greater scale than, that set the amalgamated companies in 1923 because of the need for expedition in effecting any necessary alterations in practice, and the great difficulties created by war conditions. It is not doubted that some day the story will be told of the answers given to many questions now exercising the minds of railway students.

Melbourne Suburban Traffic

THE City of Melbourne, the population of which has grown from 573,255 in 1909 to 1,048,000 in 1939, is served by 173 route miles of railway, 140 miles of tramway, and 407 bus route miles of which 350 are operated by private companies or individuals, the other services being under Government or local government control. The electrified suburban railway system carries at rush hours a two-minute service of eight-car trains, with a capacity of 21,360 seated passengers an hour on each track equipped with automatic signalling; on special occasions the number of standing passengers equals that of seated. In Swanston Street 150 trams are run during the peak hour in one direction, giving a seated capacity of about 8,000 passengers an hour. These and many other interesting facts emerge from a paper presented to the Institution of Engineers, Australia, by Mr. J. M. Ashworth, entitled "The Suburban Railway System of Melbourne: Its Problems and Their Solution." No reliable figures are available concerning the bus services, but they may be taken as having approximately the same capacity as the trams, namely, 8,000 passengers each way an hour. The average booked speed of stopping trains is 22 m.p.h., and of trams and buses 12 m.p.h. Travel habit statistics show that in 1924 the numbers of journeys a head of population touched 178 on the railways and 263 on the tramways, but, because of the extended use

of motor transport, including buses, these figures fell to 122 and 163 respectively in 1932; they have, however, subsequently again increased to 131 on the railways and 174 on the tramways. Between 1927 and 1935 there was a considerable decrease in passenger journeys on all routes except those to and from the Caulfield and Camberwell lines, but since the latter date the decrease has been relatively small, and has been more than offset by the increases on those same two routes and on the Sandringham line. These remarks apply to journeys of six miles and under; those over six miles have increased by nearly 5,000,000 since 1927, and in 1939 represented 44.6 of the total journeys made, as against 35 per cent. in 1927. The average length of journey has increased from 4.9 miles in 1910 to 6.7 miles in 1939, and seems likely to increase still further. Turning to peak hour traffic, Mr. Ashworth states that of the average number of 187,371 passengers leaving Flinders Street station daily, no fewer than 67,597—or over 36 per cent.—leave between 5 and 6 p.m. In the busiest half-hour, 5.15 to 5.45 p.m., 1,113 passengers leave every minute,* in 66 trains. This traffic is spread over eight pairs of tracks serving sixteen different lines diverging eastwards and westwards from this through-type station, but nearly 70 per cent. of the passengers travel over the four tracks running out eastwards.

As this peak traffic is increasing rapidly over the Caulfield and Camberwell lines, the problem of enhancing the capacity of the station has been examined, and it has been found that by providing additional platforms and tracks and by improving the entrances, it would be possible to pass double the number of passengers, or 2,226 a minute through the barriers and carry them away without unduly crowding any part of the station. But the problem is not so much in the station as outside it, where for many years there has been serious and growing congestion in the adjacent streets. The whole problem has been investigated and reinvestigated by various Royal and other commissions, but their recommendations—embodying for the most part a decentralisation of the terminal traffic by means of underground railways—appear to have involved expenditure regarded as prohibitive. It is the description of a railway departmental committee's scheme for solving the problem at lower cost to which the principal part of Mr. Ashworth's paper is devoted, but these recommendations are far too complicated to be recounted here. Suffice it to note that they involve an expenditure estimated at £8,800,000, which includes £2,500,000 for works at Flinders Street and the adjacent Princes Bridge station—such as provision of low-level connections and platforms—and £4,200,000 for three new sections of underground railway complete with stations; the remaining £2,100,000 is for the doubling and remodelling of surface lines, flying junctions, and miscellaneous works.

The Bengal-Nagpur Railway

THE Bengal-Nagpur Railway Company's system comprises two principal main lines on the 5 ft. 6 in. gauge, one running west from Howrah (Calcutta) to Nagpur, where a junction is made with the Great Indian Peninsular Railway to Bombay, and the other southwards from Khargpur by the east coast to Waltair, where connection is made with the Madras & Southern Mahratta system, and to Vizagapatam. There are also 799 miles open of 2 ft. 6 in. gauge. The company shares with the East India Railway the traffic from the Bengal coalfields to Calcutta and also serves the Tata iron and steel works. The report for the year ended March 31, 1940, shows a welcome recovery after the disappointing results of the year 1938-39. Gross earnings were higher by Rs. 1,52,86,563, or 16.26 per cent., while the rise in expenditure was only Rs. 34,95,031, or 5.24 per cent., resulting in an improvement of no less than Rs. 1,17,91,532, or 43.12 per cent. in net earnings, the working ratio, at 64.18 per cent., being 6.73 per cent. lower than in the previous year. The increase was mainly in goods receipts. Goods tonnage (including coal) was greater by 1,537,542, or 8.23 per cent., but this was accompanied by a rise of Rs. 1,47,79,241 in

goods receipts, or over 20 per cent. There was a slight increase in passenger traffic, both in number and receipts. The principal operating statistics are as follow:—

	1938-39	1939-40
Mean mileage worked	3,288	3,297
Passengers	20,284,250	20,355,427
Passenger miles	932,083,894	945,101,580
Goods, tons	18,667,020	20,204,562
Goods, ton miles	3,169,305,834	3,580,008,386
Operating ratio, per cent.	70.91	64.18
	Rs.	Rs.
Passenger receipts	1,63,32,561	1,65,87,387
Goods receipts	7,28,24,435	8,76,03,676
Gross earnings	9,39,96,178	10,32,62,741
Expenditure	6,66,48,108	7,01,43,139
Net earnings	2,73,48,070	3,91,39,602

The increase in working expenses is due chiefly to additional expenditure under maintenance and ordinary repairs, and operating costs corresponding to the greater volume of traffic handled. The company's share of surplus profits, for the year ended March 31, 1940, under the contract with the Government of India, amounted to Rs. 5,20,071, after payment of Indian income tax, and this sum produced £38,935 3s. 7d. After providing for a second interim dividend (making the return 4 per cent.), and other authorised outgoings, the balance to reserve will be approximately £33,000, including the allocation of £3,500 to investment depreciation fund.

* * * * *

Federated Malay States Railways

THE main line worked by the Federated Malay States Railways runs from Singapore in the south to the Thailand frontier, 580 miles from Singapore. From Gemas (a junction 137 miles from Singapore) the East Coast line proceeds northwards for 328 miles to the port of Tumpat in Kelantan. There is also a line of 11½ miles from Pasir Mas (Kelantan) to the Golok River and the Thailand boundary. Branches connect the west coast ports with the main line. The route mileage is 1,068 on the metre gauge, and 17 miles 35 chains are double track. Steam ferry services are operated, road transport services are provided, and wharves are managed, by the administration. In Malayan currency \$1 = 2s. 4d. Rubber and tin are the principal products of the territories served by the railways. In the year 1939, on which we have received the report by Mr. L. M. Smart, C.B.E., the General Manager, trading conditions in Malaya were poor during the earlier months, but there was a marked improvement during the later months because of the arrival of large stocks of commodities ordered prior to the outbreak of war. and of the increased quotas for tin and rubber. The Johore State Railway of 120 miles 68 chains is operated by the Federated Malay States Railways and the net revenue earned on the combined railway system is divisible between the railway administration and the Johore Government in agreed proportions. As the surplus revenue over expenditure was insufficient to meet the full contribution to renewals fund there was no balance of net revenue available for apportionment to the Johore Government. In 1938 the amount so available was \$11,875. The present report, greatly reduced in size, does not contain the maps, coloured graphs, and photographic reproductions of rolling stock, etc., usual in previous reports.

Total railway revenue in 1939, including receipts from road motor services, was \$92,339, or 0.7 per cent., above that of 1938, and working expenses advanced by \$257,776 or 2.2 per cent. An additional expenditure of \$79,428 or 3.7 per cent. was incurred on way and works, mainly in connection with flood repairs, safety precautions, and interlocking at two important stations. Transportation expenses (locomotive running and traffic) were \$4,839,572, an increase of \$204,415 or 4.4 per cent. They increased owing to additional train-mileage, higher costs of materials and improvements in subordinate staff salary schemes. The increase in train-mileage was from 4,478,206 to 4,928,621. Road motor collection and delivery services are operated under hire contract. Revenue from these services in 1939 was \$255,760, an increase of \$27,148, and expenditure was \$258,474, an increase of \$25,287. The additional expenditure was necessary to meet the increased demand for these facilities, which brought additional revenue to the railways. In the accompanying table

* This, the author states, is nearly twice the number leaving any London terminus in a similar period.

are shown the financial results of the combined undertaking:—

	1938	1939
Passenger receipts	4,411,789	4,365,175
Goods receipts	6,943,381	7,036,813
Total railway receipts	13,357,073	13,449,412
Railway working expenditure	11,668,936	11,926,712
Surplus	1,688,137	1,522,700
Railway renewals fund	1,987,397	2,025,036
Deficit	299,260	502,336
Wharves and ferries (net)	415,741	376,701
Total net revenue	116,481	Dr. 125,635

The operating ratio of the railways (excluding renewals fund contribution) was 89 per cent. in 1939, against 87 per cent. in 1938. The average length of haul of paying traffic was 85.71 miles in 1939 and the average goods train load was 135.41 tons. The Transportation Department was reorganised on January 1, 1939, by the abolition of two divisions and the centralisation of control in Kuala Lumpur, the headquarters of the system.

PUBLICATIONS RECEIVED

Who's Who in Railroading in North America. 1940 (Tenth) Edition. New York: The Simmons-Boardman Publishing Corporation, 30, Church Street. 9 in. x 5½ in. x 1½ in. 716 pp. Price \$7.50 net.—The previous edition (9th) of this work was published in 1930, and the title at that time was the "Biographical Directory of Railway Officials of America." The name was changed largely because the publishers were aware of the fact that many persons listed were not exclusively railway officials. In this tenth edition it has been possible to include, in addition to railway officers, leading personalities among railway supply manufacturers,

railway labour leaders, state and federal authorities, transport economists, railway financiers, educational officers concerned with railway problems, and many others directly or indirectly connected with railways. The names are arranged alphabetically and give personal information as well as details regarding the individual's career. The book covers more than 5,000 persons and has been compiled with great care from questionnaires wherever possible. In other cases it has been necessary to search the references in the *Railway Age*, and its predecessors, often referring back over almost half a century. This is a work we can recommend, not merely for the

wealth of detail it contains, but also for the precision and painstaking way in which it has been compiled.

First Aid and Home Nursing Remembrancer. By Dr. J. M. Carvell.—During the war of 1914-19, two folders on first aid and home nursing were compiled by the late Dr. J. M. Carvell, a lecturer and examiner for upwards of 20 years, and these folders became well-known to many thousands of ambulance workers and members of the medical branches of the Services. A third folder, called "Bandaging Diagrams," was issued in 1922. The three folders are now available in this 40-page 6d. booklet published by John Bale & Staples Limited, 83-91, Great Titchfield Street, W.1.

THE SCRAP HEAP

The armoured train presented by Hitler to Mussolini last year is said to have been constructed from melted down iron bars taken from the Berlin zoo. This train was illustrated in our August 9, 1940, issue.

"BLUE PENCIL" SPITFIRES

The Postal & Telegraph Censorship Department of the Ministry of Information recently completed the collection of £5,000 for a Spitfire to be named *The Blue Pencil*. This has now been followed by a sum of £500 for the R.A.F. Benevolent Fund. This money has been collected at various branches all over the country, Liverpool heading the list, closely followed by London, which finished up the season by producing its own pantomime in aid of the fund.

RAILWAYS NOT TO BLAME

Railway work has been carried on at full pressure throughout the war. The task of railwaymen is certainly one of national importance, and all over the country there has been a ready response to the call for extra duty. The railways have borne the bulk of the complaints when there have been delays in the delivery of goods, and passengers' journeys have been unusually protracted for one cause or another.

Now the boot is on the other foot at Plymouth. On Boxing Day the cartage department of the Great Western Railway Company was ready and fully prepared for a normal day's business. There was a complete cartage staff on duty, but so many places of business were closed that, in the

majority of cases, the traffic could not be delivered. Back to the goods yards went the traffic to incur the double cost of delivery and rehandling. This time the blame cannot be laid on the shoulders of the railway companies.—From "The Western Morning News" of December 28, 1940.

The longest non-stop passenger run in the United States is made by the City of Los Angeles streamline, diesel-driven, Union Pacific RR. express, between Salt Lake City and Caliente, Nevada, a distance of 324.5 miles.

Thomas Gray (1716-1771), the English poet who won international fame with his "Elegy written in a Country Churchyard," wrote in Latin verse in his "Luna Habitabilis" (Cambridge, 1737) the following:—

The time will come, when thou shalt lift thine eyes
To watch a long-drawn battle in the skies,
While aged peasants, too amazed for words,
Stared at the flying fleets of wondrous birds.
England, so long the mistress of the sea,
Where winds and waves confess her sovereignty,
Her ancient triumphs yet on high shall bear,
And reign, the sovereign of the conquered air.

This vision of war in the air by a young man is being used by the National Savings Committee in advocacy of regular savings to increase our "flying fleets" and "make it come true."



OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

INDIA

Dacca Mail Accident Inquiry Report

The report of Mr. K. B. Lall, Senior Government Inspector of Railways, on his investigations into the derailment of the Dacca mail between the Eastern Bengal Railway stations, Chooadanga and Jairampore, on August 5 last, has been issued.* Mr. Lall has come to the conclusion that the derailment was due to the removal of a rail which was found lying outside the track. After giving full details of the inquiry, the report states that it was quite obvious that the men who did the work knew how to do it and had the proper tools for it. The miscreants had a clear 24 min. at their disposal to carry out their evil designs during which they were not disturbed by either up or down trains. Whatever the object for bringing about this accident might be, Mr. Lall was satisfied that loot was not one of them, as there was no evidence of anything on the train having been pilfered after the accident.

Sabotage Proved

Mr. Lall examined other factors that might have caused the accident such as derailment due to excessive speed, defective track or rolling stock, a sudden settlement of the bank, or an obstruction on the line. His conclusion was that the train could not have been running at a dangerously high speed, and that the track, as it was, could not have caused the derailment. Mr. Lall carried out a series of experiments to determine whether the driver could have seen the removed rail and stopped the train in time, and he was convinced that no blame could lie with the driver. In the course of the inquiry it was suggested that the rail might have been removed by railway officials after the accident to give it a semblance of sabotage. The Government Inspector had given careful consideration to this point and made suitable experiments which rendered the suggestion untenable. He was almost certain that with ordinary tools the rail in question could not have been removed by a gang from under a derailed coach in the time available.

The accident was discussed at length in the Central Assembly and non-official opinion demanded a public judicial inquiry which was, however, negatived when Sir Andrew Clow gave details of the investigations that had been made.

Electric Fans in Lower Class Carriages

The Mysore administration has made a generous gesture by providing electric fans in third class carriages. As lower class passengers provide the major portion of coaching revenues on Indian

railways, the provision of fans in intermediate and third class carriages has been recognised as a desirable amenity in such a tropical country, and the Railway Board is arranging to make a beginning with inter class carriages as soon as railway finances permit. It is not likely, however, that this will be possible during the war, though the Bengal Minister for Communications recently informed the local Assembly that the Central Government was considering the question of providing fans in intermediate class carriages running on certain important lines.

VICTORIA

Melbourne Suburban Traffic Enquiry

In the annual report of the Railways Department is included a summary of the proposals by a special committee appointed in 1938 under the chairmanship of Mr. J. M. Ashworth, then Chief Engineer, Way & Works, to report upon the traffic—and how it can best be handled—in the Melbourne suburban area. [Facts and figures proving the remarkable density of this traffic, particularly at peak periods, form the subject of an editorial on page 59 of this issue, wherein the measures proposed by the committee for dealing with it are also briefly mentioned.—Ed., R.G.]

The committee's report stresses the necessity for having a clear-cut long-term programme of works to ease the strain of the still-increasing peak traffic and provide adequate transport facilities for years to come. The heavy expenditure involved would necessarily be spread over a long period, as the various works could be carried out only in limited stages to avoid dislocation of traffic, and also for reasons of finance.

An underground city railway debouching from Flinders Street and the adjacent Princes Bridge station is suggested, in order to distribute passengers nearer to their places of work. The scheme also contemplates track remodelling in Jolimont yard such that an extensive portion of that yard can be roofed over, so as to provide valuable rental sites contributing to the cost of the scheme.

The growth of building and expansion of the population around the Glen Iris, Ashburton, and Heidelberg lines, the report points out, makes it imperative to double the single-line sections of these routes if a satisfactory and adequate train service is to be provided.

Special Freight Traffic

A new 30,000 kW. alternator on order from England for the railways Newport "A" power station, having a stator part weighing 120 tons, has necessitated the building of a special truck for its carriage from ship to Newport. It will be 52 ft. long overall and consists of a main frame 34 ft. in length

resting on a special underframe at each end. Each of these underframes will be 14 ft. long and will be carried by two standard 40-ton freight bogies.

A record consignment of 28,000 telegraph poles, varying in length from 20 ft. to 60 ft., and weighing 6,500 tons, was recently railed from the Trentham and Wombat areas, and from other stations to Williamstown for shipment to Egypt. They were ordered by the Egyptian Government in 1939.

BRAZIL

Estrada de Ferro São Paulo e Minas

The conversion of the gauge—from 60 cm. to 1 m.—of this railway, which extends from Bento Quirino in the State of São Paulo to São Sebastião do Paraíso in Minas Geraes, has now been completed. By this alteration interchange traffic is made possible between the Rede Sul-Mineira and the trunk line of the Mogiana Railway, thereby constituting a uniform and extensive railway system capable of vastly improving commercial relations between Ribeirão Preto and the south-western zone of Minas, where the important Portland cement factory of Itahú is situated. In addition, this zone is notable for its production of cereals, sugar, coffee, and cotton; also Ribeirão Preto, apart from being a prosperous industrial town, is an important commercial and distributing centre. The conversion took 124 days and was carried out at the rate of 1,104 m. a day without interruption to traffic.

SPAIN

The Velilla de Ebro Collision

One of the worst disasters in the history of the Spanish railways occurred on December 3, when the express which left Barcelona at 9 p.m. collided with its opposite number, which had left Madrid for Barcelona at 7 p.m., just outside the points at the small station of Velilla de Ebro, 51 km. east of Zaragoza. The collision occurred at 4 a.m., and the work of rescue was rendered more difficult by the intense cold (10° C. below zero) and the distance from any considerable town. Large fires lighted alongside the track illumined the tragic scene. The number of deaths is now known to be 47 and at least 64 persons were injured. Many of the dead and injured were soldiers proceeding on leave and travelling in the third class carriages which were telescoped. As to the cause of the accident the results of the official and judicial enquiries are not yet known. The trains were booked to cross at Velilla de Ebro, as the line here is single, and the Barcelona train seems to have overrun the station. It stopped, but before it could be backed into the loop the Madrid train arrived at speed and the collision occurred. The enquiry will no doubt be directed to clear up the doubt as to the position of the outer home signal for the Barcelona train.

* This accident was described and illustrated in our issue of October 25, 1940.—Ed. R.G.]

NEW AMERICAN 4-8-4 TYPE LOCOMOTIVES

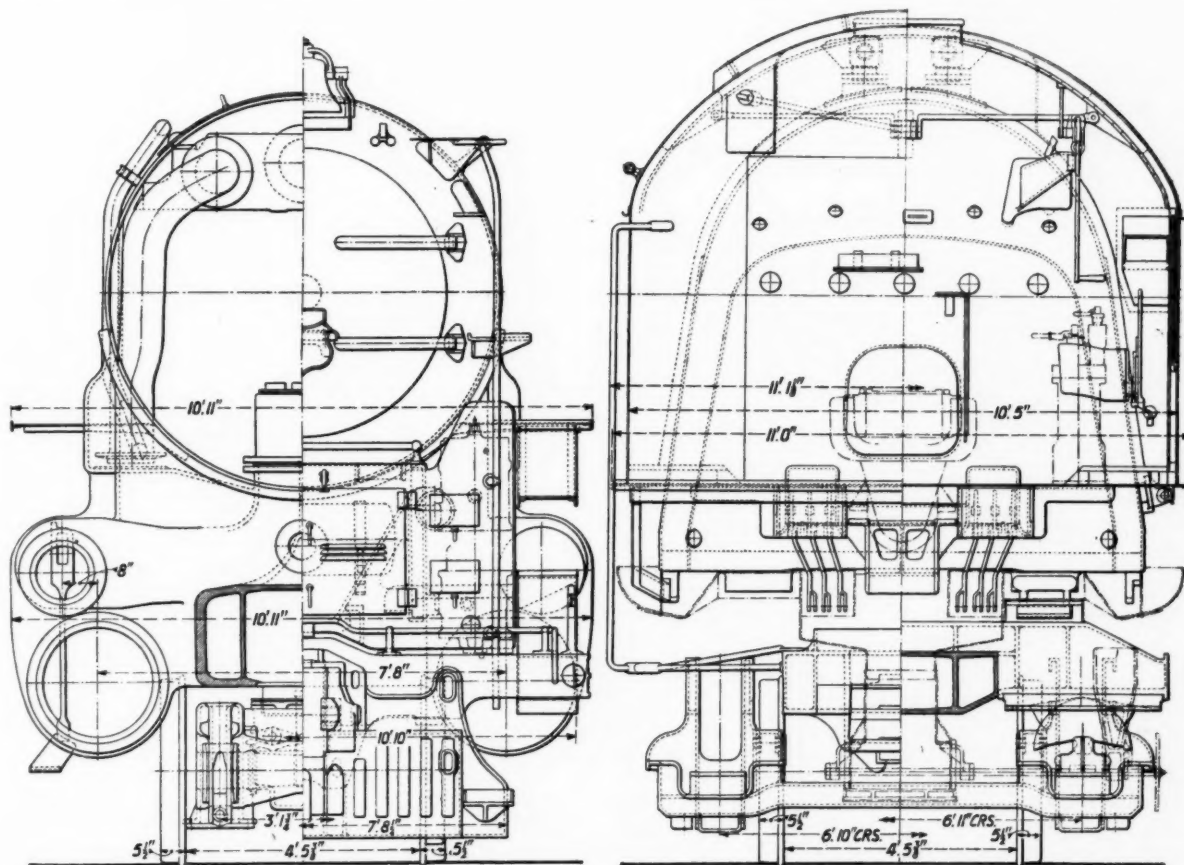
Fifteen powerful mixed traffic engines have recently been placed in service by the Union Pacific Railway. They incorporate the very latest developments in advanced design

FIFTEEN new 4-8-4 type mixed traffic locomotives have recently been placed in service on the Union Pacific Railway, bearing the numbers 820-834. They were built by the American Locomotive Company and are similar in design to those built by that concern for the same railway in 1937, but possess many improvements and changes which give them a marked superiority over the first series. It was one of the earlier engines which made the highest speed, 89 m.p.h., with a 16-car 1,000-ton train westbound to Grand Island, Nebraska, in the A.A.R. tests, described in THE RAILWAY GAZETTE of August 4, 1939, pages 165 and 171, and the record of 102 m.p.h. eastbound on a slightly descending grade.

The boiler has 184 flues, $3\frac{3}{4}$ in. in diameter, and 50 tubes $2\frac{1}{4}$ in. in diameter by 19 ft. in length, or 18 in. shorter than the length of the tubes and flues in the boilers of the locomotives built in 1937. The new boilers are equipped with type "E" superheaters, while the first series have type "A" superheaters. The difference in length of tubes has been added to the combustion chamber

which is now 7 ft. 6 in. long, as compared with 6 ft. on the earlier locomotives. The length and width of the firebox are the same. The firebox tube plate is welded to the combustion chamber and the firebox crown and door plates are welded. The back corners of the foundation ring retain the large radius. The boiler is supported on a Commonwealth bed steel casting by a sliding shoe immersed in oil, which takes the place of the conventional waist plate, and is located at the centre of the boiler. For added rigidity the smokebox liner is extended upward to the centre line of the boiler; firebar grates are used. A Sellers exhaust steam injector is fitted on the left and a Nathan non-lifting injector on the right hand side. The mechanical stoker is of the standard BK type; Wilson blow-off cocks and sludge removers are fitted.

The chimney has a continuous taper from a choke of $26\frac{1}{2}$ in. diameter to the top. The exhaust pipe is of the railway company's standard multiple-jet type, having four nozzles $3\frac{7}{8}$ in. in diameter, located on a circle 13 in. diameter. The exhaust ports through the cylinder and into the exhaust pipe have all been made exceptionally



Part sectional front end and cab views; 4-8-4 type locomotives. Union Pacific Railway

large. The smokebox arrangement is of the Locomotive Economizer Corporation's design.

The engine front bogie is the Alco design similar to those applied to the earlier locomotives, with an improved spring suspension arranged so that the load, instead of being carried on a single semi-elliptic spring on each side, is divided, one third on the semi-elliptic spring and two thirds on coil springs. The advantage gained by this feature is that a much shallower semi-elliptic spring may be used, thus affording a more flexible spring, while the initial shocks are absorbed by the coil springs.

The truck side frames are cast integrally with pedestals into which roller bearing housings are fitted. A Fabreeca pad is inserted between the top of the roller bearing housing and the side frame for the purpose of cushioning the rail vibration between the housing and the side frame. The bogie centre plate is of the Alco geared roller-centring type, which provides the desired lateral resistance, having an initial resistance of about 17 per cent. of the springborne load for a distance of 1 in. on each side of the centre, changing to 33½ per cent. resistance at that point and remaining at this figure throughout the range of the lateral travel.

The wearing surfaces between the swing bolster and frame of the bogie are protected by renewable hardened steel wearing plates lubricated by a force-feed lubricator. The centre plate bearing is also lubricated by a lubricator of this kind.

The driving, trailing bogie, and tender bogie axles are fitted with Timken roller bearings on ten of the locomotives, and with SKF roller bearings on the other five. On the locomotives with the SKF bearings the upper halves of the housings on the engine bogie extend from side to side in one piece, while the lower halves are only long enough to enclose the bearings.

The driving wheel spring suspension is provided with coil springs at the dead ends of the spring rigging. The cross equaliser at the front end of the locomotive has hangers at points inside the frame which pass through coil springs seated against the underside of the bed casting. There is a similar cross equaliser at the rear end of the back driving springs and the hangers which connect to the front ends of the trailing truck equalisers pass through coil springs on their upper ends which are seated on this cross equaliser. The rear trailing truck spring hanger is also connected through a coil spring to the trailing truck frame, the trailing truck being the Commonwealth four-wheel Delta type. These features contribute largely to the fine riding qualities of these locomotives for which they have been highly commended.

All the coupled axles, with the exception of the rear one, are equipped with the Alco lateral cushioning device. A lateral movement of ¾ in., with an initial lateral resistance of approximately 17 per cent. of the springborne load, increasing at the rate of about 2,000 lb. for each ½ in. of travel, is provided for on the front coupled axle. The cushioning devices on the second and third coupler axles provide ¼ in. lateral movement each side and have an initial lateral resistance of 8 per cent. of the springborne load, increasing at the same rate as that of the front axle.

The piston valves are the Hunt-Spiller lightweight type with Duplex sectional packing rings. The cylinder and valve bushings are also of Hunt-Spiller gun iron. The valve motion is of the Walschaerts pattern, controlled by the Franklin Type "E" reversing gear on ten locomotives, and Alco reversing gear on the other five. The maximum valve travel is 7 in. All valve motion parts are fitted with McGill type needle bearings, as well as the front end of the eccentric rod. The back end of the eccentric rod has a SKF self-aligning type bearing. Valve

motion parts have Alemite fittings for soft grease lubrication. Mechanical lubrication is provided for the steam-chests, cylinders, stoker engine, throttle, driving box pedestal faces, driving box automatic wedges, trailing truck pedestal faces, guides, radial buffer, reversing gear, leading bogie centre plate, and trailing bogie centre plate.

The cab is entirely supported by the boiler, which eliminates the effect of the relative movement as the boiler expands and contracts. It is also equipped with the railway company's vestibuled curtain arrangement. All bogie wheels of the engine and tender are 3 ft. 6 in. in diameter.

The following are the principal particulars:—

Cylinders, dia.	25 in.
stroke	32 in.
Piston valves, dia.	12 in.
max. travel	7 in.
Driving wheels, dia.	6 ft. 8 in.
Leading bogie wheels, dia.	3 ft. 6 in.
Trailing truck	3 ft. 6 in.
Evaporative heating surface, arch tubes	57 sq. ft.
firebox	442 sq. ft.
tubes and flues	3,971 sq. ft.
Total	4,470 sq. ft.
Superheating surface	1,900 sq. ft.
Grate area	100·2 sq. ft.
Boiler pressure, per sq. in.	300 lb.
Tractive effort (at 85 per cent. boiler pressure)	63,800 lb.
Adhesion weight	120 tons 10 cwt.
Weight of engine in working order	215 tons 12 cwt.
tender	181 tons 9 cwt.
Total weight of engine and tender	397 tons 1 cwt.
Water capacity of tender	23,500 gal.
Coal	25 tons

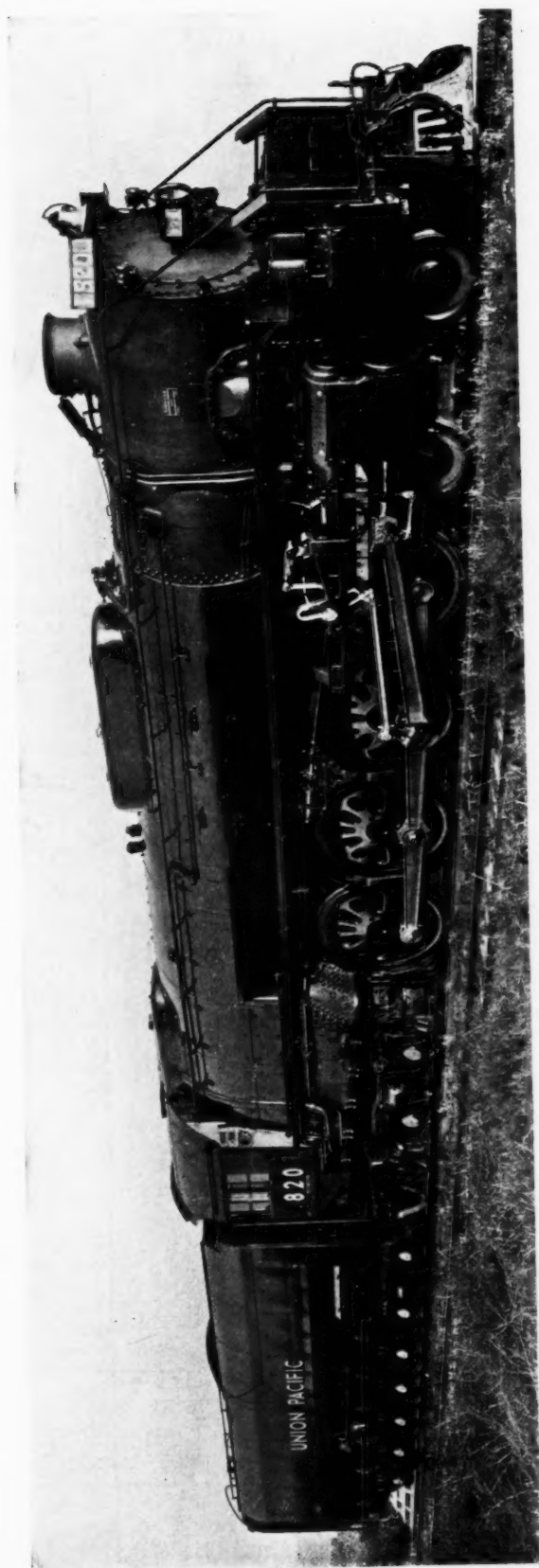
Special Features of the Tender

The tender is of a new type of exceptional design and capacity. It has a four-wheel leading bogie, followed by ten wheels in pedestals, all equipped with roller bearings. A cast-steel water-bottom frame is used in conjunction with integrally cast-in pedestals.

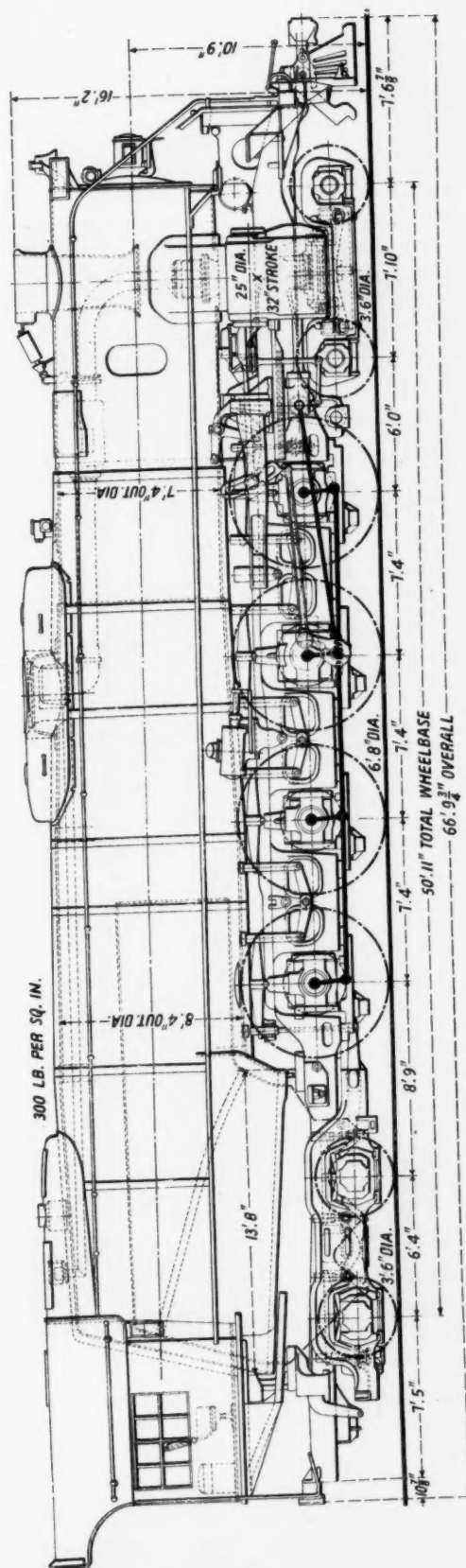
The five pedestal wheels on each side of the tender are equalised together, with one semi-elliptic spring and two coil springs over each box. The front and back end of each set of equalisation is attached to the frame through a cushioning coil spring. Between each axlebox and the semi-elliptic spring saddle is a Blunt centring device to resist lateral movement. On the front and back axle this resistance is 17 per cent., and on the intermediate axles it is 8 per cent. The Blunt device is made up of an upper and lower seat with three intermediate rollers which are engaged by means of gear teeth to the upper and lower seats to insure positive and simultaneous rotation. Each pedestal liner is made up of two hardened spring steel plates between which is bonded ½ in. of laminated rubber. A total lateral play of 1½ in. is provided for on each side of the 3rd, 4th, 5th, and 6th axles, and ¾ in. on each side of axle No. 7. The tender leading bogie is of the General Steel Castings Corporation four-wheel equalised type, with a roller centring device providing for 17 per cent. initial and 33 per cent. constant resistance. The general suspension of the floating mass is of the three-point type, similar to that used in locomotive construction, which contributes in large measure to the superior riding qualities of these tenders.

All the tender wheels are equipped with clasp brakes, incorporating an individual brake cylinder for each pair of wheels. Brakes are not applied to the wheels of the engine leading bogie but provision has been made for future application. The coupled wheels are not equipped with clasp brakes, but use is made of extra long brake heads to which two brake shoes are attached. The trailing engine bogie is equipped with clasp brakes. The connecting and side rods are of the channel type, made of lightweight low carbon nickel steel, quenched and tempered. The side rods are articulated, thus eliminating the conventional knuckle pins. The coupled wheels are the Boxpok type. Only 30 per cent. of the weight of the reciprocating parts is counterbalanced.

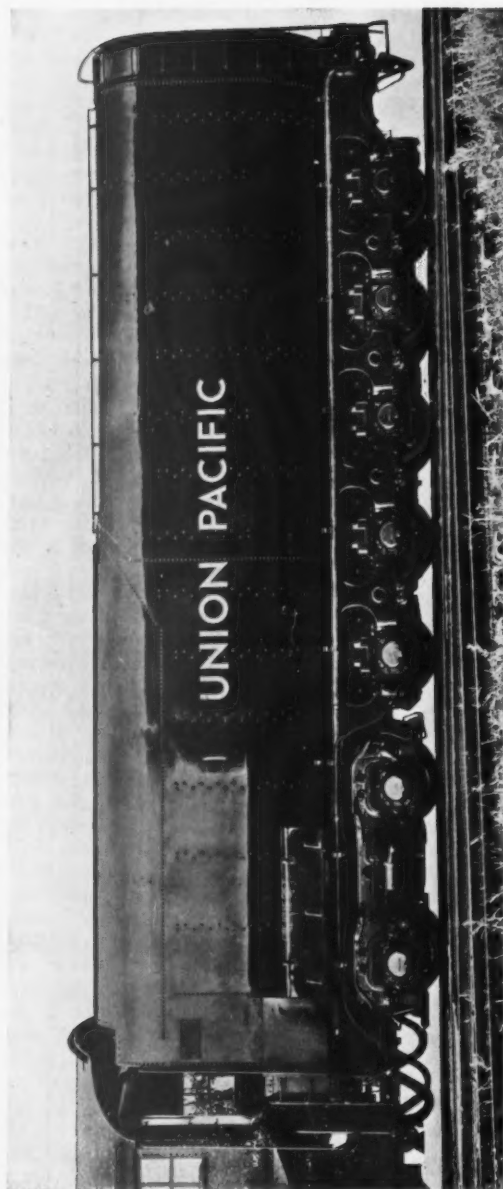
The new locomotives have been assigned to operate in



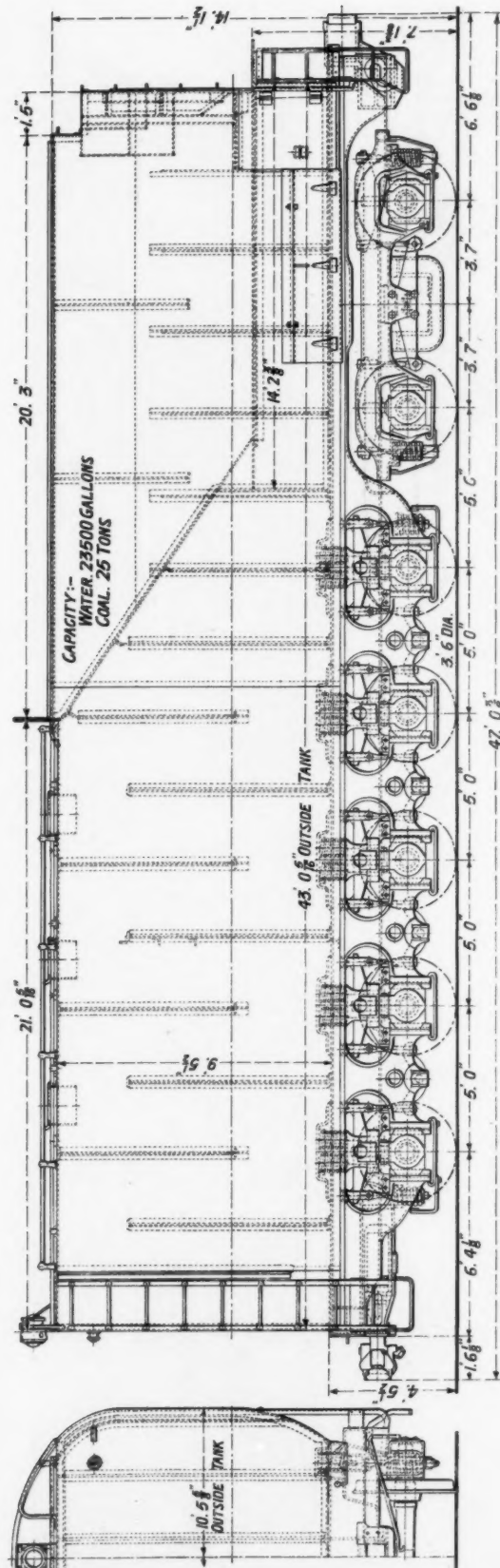
New 4-8-4 type mixed traffic locomotive, Union Pacific Railway



Overall dimensions with wheel diameters, and arrangement of wheelbase



High capacity 14-wheel tender of 4-8-4 type locomotive



Principal overall and other dimensions of tender having a leading four-wheel bogie and five rigid axles

pooled service between Omaha, Nebraska; and Cheyenne, Wyoming; to Denver, Colorado; Ogden and Salt Lake City, Utah; and Huntington, Oregon. The longest through runs are from Omaha to Ogden, a distance of 990 miles, from Omaha to Salt Lake City, 1,026 miles, and from Omaha to Huntington, 1,394 miles. They will be used principally on conventional passenger train service, handling the Challenger, the Overland Limited, the Los Angeles Limited, the Portland Rose, and the Pacific Limited trains.

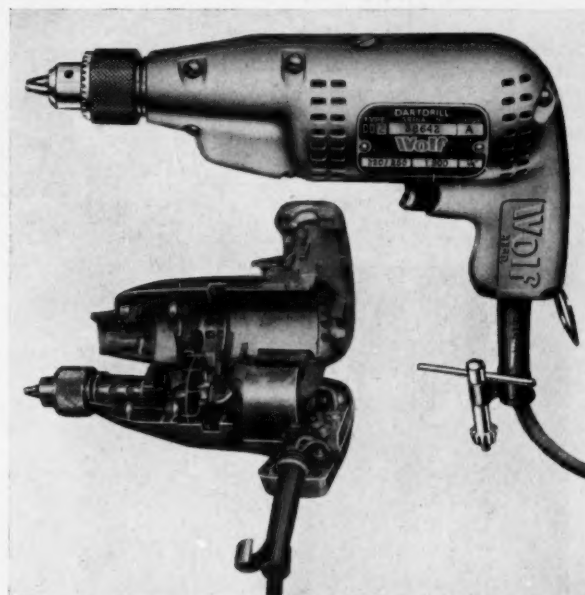
The ruling grade westbound in this territory is 1.55 per cent. (1 in 65) and the eastbound 1.14 per cent. (1 in 88). They are capable of working continuously under maximum horsepower output at 90 m.p.h. on the Union Pacific Railroad lines. All calculations in the development of the design were based on a speed of 110 m.p.h., in order to ensure an amply safe operating speed of 100 miles an hour. These locomotives will negotiate a 20-deg. or $4\frac{1}{2}$ -ch. radius curve.

New Series Portable Electric Drills

WE are informed by the firm of S. Wolf & Co. Ltd. of Pioneer Works, Hanger Lane, London, W.5, that new Wolf portable electric drills will be available for distribution in February. The machines are designed as light-duty $\frac{1}{4}$ -in. and $\frac{3}{8}$ -in. models, and each is provided with a powerful universal motor for both d.c. and single-phase a.c. 25-60-cycle supplies. The standard windings are 50 volts, 100/120, 130, 200/220 and 220/250 volts.

The general design of the Dartdrill, the name given to the machines, is unique, the interior being assembled within two half castings, as shown in one of the accompanying illustrations. The bearings are of the self-lubricating type, and a ball thrust race is fitted on the drill spindle. Examination shows that both the design and workmanship incorporated in these drills are of the highest class.

It is of interest to note that the firm's after-sales service has been still further strengthened by the addition of a service van for the Greater London area, whilst the appointment of service agents, responsible for maintenance and repairs, has been extended to cover seventeen large provincial centres apart from London. A new, fully-equipped research department is now in operation for the preparation and testing of new types.



Western Australia Government Railways

IN his report on the working of the Western Australia Government Railways, Tramways, Ferries, and Electricity Supply for the year ended June 30, 1940, the Commissioner of Railways, Mr. J. A. Ellis, refers to the effects of the war, especially as relating to the export traffic, adversely affected by the shortage of shipping. Gross earnings decreased by £43,161, or 1.19 per cent. but at the same time working expenses were less by £83,241, or 2.86 per cent., notwithstanding increases in the basic wage and costs of awards of Arbitration Courts, etc., involving an expenditure of approximately £50,000. This illustrates the economies effected by the department to meet the altered conditions brought about by the war. The loss on the year's operations shows an improvement of £12,865. The net return on capital was 2.73 per cent., compared with 2.60 per cent. in the previous year. Passenger traffic as a whole showed a decrease of 622,619, or 5.45 per cent. in number, but an increase of £26,484, or 5.15 per cent. in receipts. This apparently anomalous result was the effect of the continued decline in suburban traffic due to road competition, causing a reduction in number, while country bookings, at higher fares, increased and more than compensated for the fall in the suburban receipts. The increase in country bookings was attributable in part to the large number of units of the armed Forces travelling. As regards goods traffic, the decline of 200,265 tons, or 7.53 per cent. in tonnage, represented a decrease of £28,810 in earnings. Fewer shipments of imported coke arriving at Geraldton accounted for £18,529 less for this commodity whilst the slow movement of wheat was responsible for a decrease amounting to £27,686. On the other hand, an improvement in the tonnage of wool railed and a higher tonnage of goods carried under the "C" rate, which was increased by 10 per cent. from October 1, 1939, compensated in part the loss under other

heads. The principal operating statistics are compared in the following table:—

	1938-39	1939-40
Miles open	4,378	4,381
Train miles	6,721,453	6,262,437
Passenger journeys	11,415,615	10,793,396
Paying goods and live stock, tons	2,859,141	2,658,876
Ton miles (goods and live stock)	378,089,487	361,689,595
Average haul, miles	132	136
Operating ratio, per cent.	80.90	79.54
Passenger receipts	£ 518,833	£ 540,317
Goods and live stock receipts	2,807,215	2,744,719
Total earnings	3,599,143	3,555,982
Working expenses	2,911,570	2,828,329
Net revenue	687,573	727,653
Interest charges	1,000,799	1,028,014
Net loss	313,226	300,361

In working expenses the decrease of 2.86 per cent. is ascribed to the exercise of strict economy throughout the year, and would have been greater had it not been for the wage increases referred to above. Of the passenger train mileage 87 per cent. was steam-hauled, and 13 per cent. was run by diesel-electric railcars. For the bulk handling of wheat, bin sites were arranged at 34 additional sidings, and 91 per cent. of the wheat carried was conveyed in bulk. Wagon stock fitted with the vacuum brake now numbers 9,432, representing 83.63 per cent. of the total, while 1,669, or 14.79 per cent. are fitted with train pipe. During the year 198 locomotives, of the 421 owned, passed through the workshops for repairs. Progress was made with the construction of the ten new 4-8-2 Class "S" locomotives, and the first is expected to be completed in October, 1941. Coal prices are again higher (42s. 6d. for imported and 14s. 9d. for native coal) and this overset the reduction in consumption. Difficulties due to the war were enhanced by the continuance of evasions of the State Transport Co-ordination Act, vehicles operating technically within the Act, but actually far beyond the range intended by this measure.

British Railways and the War—53



On Friday last, January 10, H.R.H. the Duke of Kent paid a visit to the London Transport railways. He inspected Neasden depot, Neasden South signal box, Piccadilly Circus station, and Leicester Square station, with its traffic control office. Above: The Duke of Kent with Mr. T. E. Thomas (General Manager, Operation); Major R. Falshaw Morkill (Joint Signal Engineer); Mr. John Cliff (a Member of the board and Executive Officer for Staff & Staff Welfare); Mr. V. A. M. Robertson (Engineer-in-Chief); and Mr. Alex. J. Webb (Outdoor Superintendent, Railways). Left: The Duke viewing an Underground train that was damaged during a recent air raid on London



Above: A corner in the medical aid post on the platform at Notting Hill Gate station, Central Line, London Transport. Left: Red Cross nurses in attendance at a London tube station to give first aid attention to shelterers (See page 75)

RAILWAY NEWS SECTION

PERSONAL

Mr. John Quirey, C.B.E., has by Royal Warrant dated January 1, 1941, been re-appointed a permanent member of the Railway Rates Tribunal for a further period expiring on December 31, 1941.

We regret to record the death on January 8 at the age of 71 of Mr. John White Hampsher, Director & General Manager of Keith Blackman Limited. Mr. Hampsher joined the company in 1892, became Secretary in 1905, and was elected to the board in 1921. He was appointed General Manager in 1925.

We regret to record the death on January 10 of Mr. Alexander Cowan McCorquodale. Mr. McCorquodale, who was born in 1858, was the eldest surviving son of the late Colonel George McCorquodale, who in 1841 founded in Liverpool the well-known firm of printers of that name, whose activities were extended to London, and other places. Mr. McCorquodale was Chairman of the Liverpool Daily Post and Echo Limited, and a Director of McCorquodale & Co. Ltd., and of Henry Blacklock & Co. Ltd.—the publisher of *Bradshaw*.

The directors of the Proprietors of Hay's Wharf Limited have elected Mr. Owen H. Smith as Chairman of the company in place of Mr. Henry Mansbridge, whose death we recorded in our issue of December 20.

Mr. George W. Barris, Deputy Road Transport & Cartage Assistant to the Chief Operating Manager, L.M.S.R., who retired on October 3 after 49 years' service, has been presented with a cheque by his colleagues to mark their esteem and affection. Mr. Barris was the son of a Liverpool railwayman, and began his railway career with the London & North Western Railway under the Liverpool District Goods Manager. During the 1914-1919 war he was attached to L.N.W.R. headquarters at Euston. Subsequently, Mr. Barris became associated with the Road Transport & Cartage Department, of which he became Deputy Road Transport & Cartage Assistant. During Mr. Barris's early days in the Liverpool District of the old L.N.W.R., he was well known as a runner and in later years as a Football Association referee.

Mr. Ronald Leslie, who, as recorded in our January 10 issue, has been elected a Director of the Central Argentine Railway, was educated at Aldenham School and Pembroke College, Cambridge, from which he graduated with an honours degree in 1899. After a period of foreign travel, he entered, in 1902, the General Manager's Office of the Midland Railway (England), in the service of which company he remained



Mr. Ronald Leslie

Appointed a Director, Central Argentine Railway.
London Manager & Secretary, 1936-1941

for 12 years. In February, 1903, he was transferred to the office of the Superintendent of the Line, and served on the staff of the London District Superintendent. He was later attached to the staff of the District Superintendent at Leeds, and returned to Derby in 1906 as Assistant to the Superintendent of Passenger Trains. After being in charge of the Derby District Superintendent's office during a period of reconstruction, he was appointed in September, 1913, Superintendent of Freight Trains, a position which involved the supervision of the well-known traffic control system of the Midland Railway. This post he relinquished in May, 1914, to take up that of Assistant to the General Manager of the Central

Argentine Railway. In October, 1918, Mr. Leslie was appointed Deputy Traffic Manager, and in 1922 was promoted to be Traffic Manager, the position he held until appointed General Manager in 1926, in succession to Mr. Howard-Williams. In 1929, Mr. Leslie made an extensive tour through the U.S.A. and Canada to study railway conditions and methods of operation in those countries. During his period of managership he was the railway and tramways companies' representative on the Council of the British Chamber of Commerce in Buenos Aires. He was a member and Past-Chairman of the Argentine & River Plate Centre of the Institute of Transport, and a member of the Institution of Locomotive Engineers (London). Mr. Leslie retired from the general managership in 1936 and returned to England to take up the appointment of London Manager & Secretary, which position he is now relinquishing on his election to the board.

We regret to record the death on January 3 at the age of 84 of Captain Alexander Williamson, O.B.E., who was a member of a famous family which for more than a century owned and sailed passenger steamers on the Clyde. His father was also named Capt. Alexander Williamson and came from Luss, where he was engaged in the Glasgow-Dumbarton service of steamers in the thirties of last century, later in the Largs, Millport, and Arran service, and afterwards in company with William Buchanan. In 1861 he began in his own account with the steamer *Sultan*, to which he added the *Viceroy* and the *Marquis of Bute*. With his two brothers, James and John, both of whom held master's certificates, Capt. Alexander Williamson, Jr., followed his father's profession. Mr. James Williamson, the eldest of the brothers, was for many years head of the Caledonian Steam Packet Co. Ltd. The other brother, John, was famous as a pioneer of turbine propulsion for river steamers, and as head of the firm of John Williamson & Company, built the *King Edward*, the first turbine passenger steamer on the Clyde. Capt. Alexander Williamson, the last of the three brothers, gained his master's certificate when he was 21 and on the day he received it was sent by his father to the Kyles of Bute in charge of one of the ships. After some years of experience in his father's business, Capt. Williamson became Marine Superintendent of the Glasgow & South Western Railway Com-

pany. In 1910 he became a Local Director of John Brown & Co. Ltd., Clydebank, and his valuable assistance in the war effort of 1914-1919 earned him the O.B.E., which was conferred on him in 1918, the year in which he retired from active business life. He is survived by one son who is a ship-broker in London.

We regret to record the death, on December 20, of Mr. Calverley Raby Riley, who was for more than 50 years on the staff of the Great Southern Railways, Eire, and predecessor companies. Mr. Riley, who was born at Liverpool in 1844, began his railway career in the works of the Great Western Railway at Swindon. About 1870 he went to Ireland to work for the Great Southern & Western Railway at Inchicore. In due course he became Stores Superintendent and held this position at the time of his retirement. Mr. Riley's eldest son, Mr. C. E. Riley, was General Manager of the Great Southern Railways from 1928 until his retirement in 1932.

We regret to record the death on January 15 of Lord Wakefield. We hope to publish a portrait and biographical notice in our next issue.

We regret to record the death of Mr. Michael J. O'Brien, at the age of 89, at his home in Renfrew, Ontario, on November 26. Mr. O'Brien was born at Locaber, Antigonish County, Nova Scotia, and began work in a railway construction camp at the age of 12. At the age of 25 he took his first big job on his own account when, in partnership with Mr. William Chisholm, he undertook to build part of the north shore Canadian Pacific line between Montreal and Ottawa. Other big railway contracts followed in many parts of Canada. As Canada's railway building age drew to a close Mr. O'Brien turned his accumulated capital and ability to other fields. He acquired more than 1,000 square miles of virgin timber in Quebec near the Trans-Continental Railway. Because of his knowledge of Northern Ontario, the Ontario Government made Mr. O'Brien one of the first commissioners to build and operate the Temiskaming & Northern Ontario Railway. The building of that line opened up the Cobalt mining fields.

INDIAN RAILWAY STAFF CHANGES

Mr. J. C. O'Neill, Senior Government Inspector of Railways, Bombay, has been granted 28 months' leave preparatory to retirement, as from September 14 last.

Mr. C. G. Graham has been confirmed as Deputy Chief Engineer (Maintenance) G.I.P.R.

Mr. Charles Alexander Muirhead, C.I.E., whose retirement from the position of Agent & General Manager, South Indian Railway, and election to the board we announced on January 3, is the son of the late Mr. Alexander Muirhead, at one time Agent of the same railway, and later Chairman & Managing Director, and was educated at Cheltenham College. Mr. Muirhead was appointed in London by the late Sir David Yule to Andrew Yule & Co. Ltd., and went out to India in 1908. He joined the South Indian Railway in 1924, as Senior



Mr. C. A. Muirhead, C.I.E.

Agent & General Manager, South Indian Railway, 1935-1940, who has been elected to the board

Assistant Secretary to the Agent, and in 1928 was promoted to be Secretary to the Agent. Mr. Muirhead acted as Deputy Agent from March, 1930, to June, 1931, when he was confirmed in that appointment. From March to October, 1933, he acted as Agent in the absence of Sir Percy Rothera on leave, and, when Sir Percy retired early in 1935, Mr. Muirhead succeeded him as Agent. The title of General Manager was added to that of Agent in 1939. Mr. Muirhead was President of the Indian Railway Conference Association for the 1940-41 session. In the recent New Year Honours List it was stated that Mr. Muirhead had been created a Companion of the Order of the Indian Empire.

Sir Allan J. Grant, Managing Director of Thos. Firth & John Brown Limited,

whose name was included in the recent New Year Honours List, received the accolade of knighthood on January 6 when the King and Queen visited the works during a tour of Sheffield. In our issue of November 24, 1939, we published a portrait of Sir Allan taken from an oil painting presented to him by the staff and directors to commemorate his successful year of office as Master of the Cutlers Company of Hallamshire.

Viscount Horne of Slamannan, P.C., G.B.E., has left estate valued at £64,923. Lord Horne, whose death we recorded in our issue of September 6, was Chairman of the Great Western Railway from 1934 to the time of his death and was at one time Chancellor of the Exchequer. He was also a Director of the Suez Canal Company, Lloyds Bank Limited, Imperial Smelting Corporation Ltd. (of which he was Chairman), P. & O. Steam Navigation Company, and the Commercial Union Assurance.

Mr. Arthur Silvester Matthews, who, as announced in our January 10 issue, has been appointed Secretary of the Central Argentine Railway, was educated at Cheam School, Eton, and Magdalene College, Cambridge, where he took an honours degree in mathematics. He received a temporary commission in the 13th Reserve Cavalry Regiment in August, 1914, and served in France with the 8th (King's Royal) Hussars from May, 1916, to February, 1919. From February to September, 1927, he was on a special mission to Colombia, Peru, and Ecuador. Mr. Matthews was appointed Assistant Secretary to the Central Argentine Railway in 1928; Assistant to the General Manager at Buenos Aires in July, 1934; and Stores Superintendent at Rosario in February, 1936.

Mr. J. E. Spear, whose portrait we reproduce this week, was appointed General Manager of the Fischer Bearings Co. Ltd. last May, when a controlling interest in the company was acquired by British Timken Limited. Mr. Spear, who was educated at Oundle School, served an apprenticeship for five years with the Metropolitan Railway at Neasden, and gained experience both in steam and electric traction. During the latter period of his apprenticeship he acted as assistant, first to the Works Superintendent and later to the Chief Mechanical Engineer. He then went for a short period to W. H. Dorman & Co. Ltd., Stafford, where he was employed in the estimating department in connection with estimating, rate-fixing, and time study, in the manufacture of internal-combustion engines. From 1928 to 1932 he was



[Photo]

[Vandyk]

Mr. A. S. MatthewsAppointed Secretary,
Central Argentine Railway

Works Engineer to the Universal Grinding Wheel Co. Ltd. at Stafford, where he was responsible for large extensions and the installation of new plant, much of it experimental. Mr. Spear went to British Timken Limited in 1932 as the company's railway specialist, to develop the use of Timken tapered roller bearings in railway axle boxes and generally in railway applications. In connection with this work, he travelled widely on the Continent; visited the Timken Roller Bearing Company in the United States; and was present at the last two International Railway Conferences held respectively in Cairo and Paris. Later he took charge of the Engineering Division of the British Timken Sales Department where he was responsible for sales to the general

**Mr. J. E. Spear**Appointed General Manager,
Fischer Bearings Co. Ltd.

engineering industry, railways, and for rolling mill applications. He was also at that time responsible for publicity. Mr. Spear is an Associate Member of the Institute of Locomotive Engineers.

Mr. C. E. Shackle, A.M.Inst.C.E., New Works Assistant to the Chief Engineer, Paddington, Great Western Railway, retired on December 31 after 40 years' service. He was educated at Uppingham School and obtained a diploma at the Central Technical College, City & Guilds Institute. In 1897 he joined Sir Benjamin Baker's staff on the construction of the Central London Railway. A year later he transferred to work upon the Clapham Common extension of the City & South London Railway. Mr. Shackle joined the staff of the G.W.R. in 1900 when he was engaged on contracts in connection with new works. In 1905 he went to Birmingham as Resident Engineer for the eight miles of widening works between Olton and Handsworth, and for the re-building of Snow Hill station in Birmingham. In 1917 he joined the R.N.V.R. on construction works, and upon the formation of the R.A.F. transferred to it. Mr. Shackle returned to railway service in 1919 and was in charge of contracts under the New Works Engineer, being Resident Engineer for the Usk River viaduct and other works at Newport and also Ponsanooth viaduct on the Falmouth branch. Later he took charge of the preparation of contracts for quadrupling the lines between Cogload and Norton Fitzwarren, Olton to Rowington, and Filton to Stapleton Road. From 1933 until the end of 1939 he carried out a large number of new works for the Chief Engineer, of which the principal were the reconstruction of Paddington goods station and the alterations in Paddington passenger station. Other important works with which Mr. Shackle was concerned were the extension of the Central London Line from North Acton to Ruislip—not yet opened—and the locations of the Dawlish deviation line and that from St. Germans to Looe. In December, 1939, Mr. Shackle was appointed New Works Assistant to the Chief Engineer, Paddington.

Mr. T. C. Swallow, M.I.Mech.E., Advisory Engineer to the High Commissioner for the Union of South Africa, since November, 1932, has relinquished this position on his transfer to the United States of America. It has been decided to inaugurate, under the jurisdiction of the Union Minister at Washington, a commercial buying organisation for the purchase of materials, etc., in the U.S.A. and Canada for the South African Railways & Harbours Administration. Mr. Swallow joined the service of the Cape Government Railways in October, 1902, and after two years at Salt River was transferred to the drawing office at East London where for several years he carried out coal tests and trials be-

**Mr. C. E. Shackle**New Works Assistant to the Chief Engineer, G.W.R.,
Paddington, 1939-1940

tween East London and Queenstown. He went in 1916 to Salt River as Chief Draughtsman and in 1924 entered the Transportation Department at Beaufort West, Kimberley, South West Africa, as Assistant Superintendent (Mechanical). In 1927 Mr. Swallow became Mechanical Engineer first at Bloemfontein and then at Uitenhage. He was transferred to London in November, 1932, to become Advisory Engineer to the High Commissioner, the position he now relinquishes. Mr. Swallow's address in the U.S.A. will be care of the Consul for the Union of South Africa, 21st Floor, 500, Fifth Avenue, New York.

Mr. W. H. Maass, who was Mr. Swallow's Assistant, has taken over the duties vacated by Mr. Swallow.



[Photo]

[Lafayette]

Mr. T. C. SwallowAdvisory Engineer to the High Commissioner for the
Union of South Africa, 1932-1941

Indian Railway Conference Association

The 42nd session of the Indian Railway Conference Association was held at New Delhi from October 26-29, 1940, under the Presidency of Mr. C. A. Muirhead, then Agent & General Manager of the South Indian Railway. A group photograph of some of those who attended is reproduced below.

Presidential Address

In his address at the opening of the conference, the President welcomed Sir Andrew Clow, the Hon. Member for Communications; Mr. L. Wilson, who since the last session had succeeded Sir Guthrie Russell as Chief Commissioner of Railways; Mr. B. M. Staig, Financial Commissioner, and the Members of the Railway Board. He then referred to Sir Guthrie's appointment as Director-General of Engineering in the Defence Department (corresponding to the War Office at home) and congratulated him on behalf of the conference upon it. He also deeply deplored the recent death of Sir Percy Rothera, Deputy Chairman of the South Indian Railway, and former Agent of that system, and sometime Director of the Mesopotamian Railways, and President of the conference.

Indian Railways War and Other Activities

Turning to the subject of the war, Mr. Muirhead dwelt at some length upon the rôle to be played by the Indian railways to secure its effective and successful prosecution; some notes on his remarks in this connection will be found in our Transport Services and the War columns this week.

He also spoke appreciatively of the excellent work of the Wagon Turn

Round Committee under the chairmanship of Mr. B. Moody, and specially complimented its members on the wide scope of their investigations and the useful recommendations made in their report, which embraced the major part of railway freight operation.

The President next outlined the history of the proposals to build broad-gauge locomotives in India, and expressed his confidence that, as soon as conditions returned to normal, the Government would implement in full the recommendations made in the report of the committee of experts, who had examined the subject thoroughly, and that it would proceed with new-engine building at the Kanchrapara workshops of the Eastern Bengal Railway.

Road Competition

The final major topic discussed in the address was road competition, and in particular the effects of the Motor Vehicles Act of 1939 upon it. The provisions of this Act had been expected to give the railways considerable relief from unrestricted competition, but unfortunately the results had been disappointing. In actual working, there was a lack of uniform interpretation and application of the rules, and a correct appreciation of the functions of the Transport Authorities, as envisaged by the Act, was absent. These authorities had, however, begun to realise the gravity of the situation, and many of them had arranged intensive checks on overloading of lorries and buses and other irregularities.

Though the control established by the new legislation had resulted in no

marked decrease in road motor services, the authorities had been careful not to increase the numbers of bus services on competitive routes. There had, however, been a considerable expansion in lorry services on long-distance routes.

These not-altogether satisfactory results were partly due to absence of explicit provisions in the Act for safeguarding railway interests. For instance, it did not insist that the railways should be represented on the Transport Boards, and the restriction of routes for long-distance lorries and the fixing of maximum and minimum lorry rates and bus fares was vested not in the Regional or Provincial Transport Authorities but in the Provincial Governments. Furthermore, the Act made no attempt to arrive at relationship between rail and road tariffs.

Wartime enhanced petrol and other road costs had not reduced road competition as had been expected, as, at any rate in the south, road hauliers had met these difficulties by fitting their vehicles with producer-gas plants, using ordinary charcoal. The speaker foresaw, therefore, little likelihood of any great reduction in this competition in the near future.

Elimination of Level Crossings

Referring to the elimination of level crossings, Mr. Muirhead advocated the use annually of a certain proportion of the Petrol Fund to cover the cost of all-important level crossing eliminations, as many local authorities could not afford to finance those necessitated by growth of road traffic. He concluded by paying a tribute to British railwaymen "whose heroic deeds in the Battle of Britain have evoked the admiration of everyone," and by thanking Mr.



Back row (standing): Mr. P. Govindaraja Pillai (S.I.R.); Mr. J. F. C. Reynolds (S.I.R.); Mr. A. T. Pegge (B.L.R.); Lt.-Col. E. F. Johnston (Martin's L. Rys.); Mr. W. H. H. Young (E.I.R.); Mr. G. St. G. Higginson (B.-N.R.); Mr. L. F. Jackson (Jp. S.R.); Mr. J. Fearfield (Bk. S.R.); Mr. A. Mair (R. & K.R.); Mr. H. B. Gifford (Bk. S.R.); Mr. J. H. Bayin (A.-B.R.); Mr. T. Christian (I.R.C.A.).
2nd Row (standing): Mr. A. R. Edington (S.I.R.); Rai Saheb G. D. Mehta (J. & D.R.); Mr. E. J. Hope (G.L.R.); Mr. R. S. Tripathi (Dh.S.R.); Khan Bahadur M. A. Rashid (G.B.S. Rys.); Mr. F. H. Bibra (B.S.R.); Mr. Y. K. Ramachandra Rau (M.S.R.); Mr. J. M. Pandya (Gondal R.); Mr. N. R. Green (Morvi R.); Mr. H. M. Read (B.D.R.); Mr. G. T. Simpson (Jodhpur R.); Mr. R. S. Vipan (A.-B.R.); Mr. V. L. Dean (G.Sec., I.R.C.A.).
Front Row (sitting): Mr. R. G. Manson (A.-B.R.); Mr. A. C. Griffin (N.W.R.); Lt.-Col. E. W. Slaughter (N.S.R.); Mr. G. C. Laughton (B.B. & C.I.R.); Mr. A. Duncan (B.-N.R.); Mr. C. A. Muirhead (S.I.R.; President, I.R.C.A.); Mr. J. W. Gordon (Jodhpur R.); Mr. G. E. Cuffe (G.I.P.R.); Mr. C. G. W. Cordon (M. & S.M.R.); Mr. L. P. Misra (E.B.R.); Mr. R. Mair (E.I.R.).

INDIAN RAILWAY CONFERENCE ASSOCIATION

Group taken at New Delhi, during the 42nd session which opened on October 26, 1940

V. L. Dean, the General Secretary of the conference association and its other staff for all their assistance during his year in office. Mr. Muirhead also thanked the members for electing him as President.

Speech of Member for Communications

Sir Andrew Clow's speech touched upon the building of locomotives in India, a postponed "cherished hope" at present, but a development "which should be particularly valuable as affording at the end of the war a substantial industry for some of the surplus engineering labour which India may have on its hands." Referring to road competition, he said he had not expected the Act to achieve much in that direction, as its object was not to foster railway traffic but "to secure healthier conditions for road traffic and safer conditions for the public," though it contained "one section designed to secure some co-ordination between road and rail"; that provision had not yet been tried. He recognised that if the railways were robbed of the cream of the traffic they would either have to increase rates on coal and other low-rated commodities to the detriment of industry generally, or some light-traffic lines would have to be closed, however unpopular such action might be. A section of the public "wanted it both ways," and the sooner the incompatibility of the two demands was fully realised, the sooner the problem would be solved. Some measure of direct co-ordination might have to be attempted.

Sir Andrew also emphatically commended the Wagon Turn Round report and concluded by expressing appreciation of the work done on the railways all over India.

At the close of the session Mr. Duncan thanked the conference for honouring him by his election as President in succession to Mr. Muirhead, and the latter closed the formal proceedings with a further acknowledgment of the assistance he had received from all concerned during the Delhi session. A vote of thanks to the President, moved by Mr. G. C. Laughton, Agent & General Manager of the B.B. & C.I.R., and seconded by Mr. C. G. W. Cordon, Agent & General Manager M. & S.M.R., together with Mr. Muirhead's reply, closed the session.

DIAMOND DIE CONTROL.—The Minister of Supply has issued the Control of Diamond Wire-Drawing Dies (No. 1) Order, 1940 (S.R. & O. No. 2158, 1940) effective from January 1. The Order provides that no person shall acquire mounted or unmounted diamond wire-drawing dies except from the Minister of Supply or under his authority, and that no person shall dispose of dies except to the Minister or to a person authorised by him. The Order further provides that no person shall produce these dies except under the authority of the Minister.

RAILWAY AND OTHER REPORTS

Midland Bank Limited.—The directors report that, full provision having been made for all bad and doubtful debts, the net profits for the year 1940 amount to £1,933,093 which, with £642,217 brought forward, makes £2,575,310 out of which the following appropriations amounting to £1,257,931 have been made: to interim dividend, paid July 15, 1940, at the rate of 8 per cent. actual, less income tax, £757,931; to contingent account for war damage to bank premises, £250,000; to reserve for future contingencies, £250,000; leaving £1,317,379 from which the directors recommend a dividend, payable February 1, for the half-year ended December 31, 1940, at the rate of 8 per cent. actual, less income tax, £697,297, and a balance to be carried forward of £620,082.

Buenos Ayres, Ensenada & South Coast Railway Co. Ltd.—Report to June 30, 1940, shows gross receipts £64,874, against £57,003. Percentage retained under working agreement by the Buenos Ayres Great Southern Company, is 73.71 per cent., or £47,818, leaving £17,055, against £14,462. After paying interest on 4 per cent. first mortgage debenture stock and on the Atalaya debentures, there remains £8,255 for reduction of arrears on 6 per cent. "B" debentures.

Argentine Transandine Holdings Limited.—Formed to acquire the assets of the Argentine Transandine Railway Company, with a view to their realisation following the sale of the railway to the Argentine Government, the first results show that income on investments for the first period from June 26, 1939, to June 30, 1940, amounting (after £1,656 tax) to £27,345, was sufficient to pay the interest on the 4 per cent. "A" and "B" debenture stocks. All formation expenses have been met and balance of £323 is applied to redemption of "C" stock.

Sudan Construction & Equipment Co. Ltd.—The rolling stock and other equipment acquired under the terms of the company's loan were operated during the year ended October 31, 1940, by the Sudan Railways. The instalments paid by the Sudan Government under the sale agreement of December 1, 1924, have been sufficient to cover the interest and redemption on the debenture stock, as well as expenses incurred by the company.

Gedaref Railway & Development Co. (Sudan) Ltd.—The report for the year to October 31, 1940, shows that the Kassala-Gedaref-Makwar line, which forms part of the main railway system in the Sudan, was operated for passenger and goods traffic throughout the year by the Sudan Railways, acting as contractor to the company, in accordance with the construction contract of January 12, 1927. The instalments paid by the Sudan Government under the sale agreement of January 13,

1927, were sufficient to cover interest and redemption on the debenture stock, as well as all the expenses incurred by the company.

Tanganyika Concessions Limited.—Owing to existing conditions and to the fact that no dividend has been received from the Union Minière du Haut Katanga, the directors are unable to recommend the payment of a dividend on the preference stock for the year ended July 31, 1940. Tanganyika Concessions Limited holds 90 per cent. of the share capital and all the income debentures of the Benguela Railway.

Wellington Grey & Bruce Railway Company.—Estimated earnings for the half year ended December 31, 1940, applicable to meet interest on the 7 per cent. bonds, will admit of the payment of £4 8s. 6d. on each £100 bond. This payment will be applied as follows: £2 14s. 7d. balance due for Coupon No. 118 due July 1, 1929; and £1 13s. 11d. on account of Coupon No. 119, due January 1, 1930, and will be made on and after January 1, 1941, at the offices of the Canadian National Railway Company, Orient House, 42/5, New Broad Street, E.C.2.

Mexican Southern Railway Limited.—The report for the year 1939 refers to the schemes of arrangement of 1927 and 1931, which provide that the net earnings of the Inter-oceanic System (in which the lines of the Mexican Southern Company are included) shall be pooled and the obligations of the group placed on a defined income-sharing basis for a prescribed period from January 1, 1927. The operation of the Inter-oceanic System for the year 1939 having resulted in a loss, no amount is receivable by the Mexican Southern Company on account of debenture interest under the schemes of arrangement.

Paraguay Central Railway Co. Ltd.—Gross receipts for the year to June 30, 1940, were £136,043, an increase of £22,337, and working expenses at £104,763 were up £9,152, leaving net receipts £31,281, higher at £31,281. In Paraguayan currency receipts increased by 2.40 per cent. and expenditure decreased by 6.08 per cent. Net revenue, including interest, dividends, and differences in exchange, was £45,052. After providing for interest on the prior lien 6 per cent. debenture stock and on the 7 per cent. "A" debenture stock, there is a debit balance for the year of £8,448, bringing the total debit balance to £164,733.

Jonas Woodhead & Sons Limited.—Profits for the year to August 31, 1940, were £60,120 (against £32,064). The directors have placed £38,000 (against £32,978) to reserve for taxation and contingencies and £5,000 to staff pensions account. Dividend is again 10 per cent. and £10,187 (against £8,021) is carried forward.

TRANSPORT SERVICES AND THE WAR—73

*Port transport co-ordination—Shelter in Underground stations—Irish Channel air travel—
The Eireann L.D.F.—Indian railways and the war effort—Roumanian oil and transport*

It may probably come as a surprise to some of our readers to learn that as early as October, 1914, instructions were issued by the South Eastern & Chatham Railway about action to be taken in the event of attack by hostile aircraft

SEA 21.

H. E. O. WHEELER
London District Superintendent

Telephone: 1027 5022 (5 Lines)
Refer herein to your reply.

D 5239/81 A.

South Eastern and Chatham Railway.

LONDON DISTRICT SUPERINTENDENT'S OFFICE,
LONDON BRIDGE STATION, S.E.

30th October, 1914.

Dear Sir,

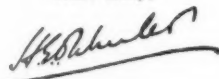
Possible Attack by Hostile Aircraft on London

Referring to the Meeting which took place today, please note that you will receive a message from the Special Traffic Department of the Office of the Superintendent of the Line, giving warning of the approach of hostile aircraft on London, and when such warning is received, you will please arrange for a responsible man to act as look-out man and station him on the roof. Should he see any aircraft approach, he should at once warn the Head Signaller in your Charing Cross Box, who will immediately give the obstruction danger signal: Belvedere Road Cabin and hold all down trains in the platform, so as to avoid trains crossing the Bridge while hostile aircraft is in the vicinity. It must, however, be understood that the Bridge shall not be closed for longer than is absolutely necessary.

Should the approach take place when dark, arrangements must be made as far as possible to temporarily reduce the lighting in the Station and in the Cabins under your control.

Please acknowledge receipt and let me know what arrangements you have made and the person chosen to act as look-out man.

Yours truly,



Mr. Lord,

Charing Cross.

on London. However, the accompanying facsimile letter (over the signature of Mr. H. E. O. Wheeler, now Superintendent of Operation) shows not merely that air raids were regarded as possible, but that provision was made for a roof spotter, for blackout, and for temporary traffic suspension.

Port Transport Co-ordination

The Secretary to the Ministry of Transport announced on January 10 that, to obtain greater co-ordination of that part of the national war effort which is centred on ports in the United Kingdom, the Minister of Transport has appointed Mr. J. Gibson Jarvie and Mr. Robert Letch to be the Regional Port Directors for the North Western Region and the Clyde Region respectively. The functions of the directors will be to co-ordinate the activities at the ports within their region in order to secure: (1) the most rapid clearance through the ports of goods, whether inward or outward-bound; (2) the quickest turn-round of ships; and (3) the best use of available transport facilities. The North Western

Region comprises all ports between Holyhead and Sillithy; the Clyde Region all ports between Stranraer and Oban.

To achieve these ends the Regional Port Directors have been authorised by the Minister of Transport to exercise the powers he has hitherto reserved to himself of issuing instructions, general or particular, to the Port Emergency Committees as to the directions they give to the authority at any port for regulating, facilitating, and expediting the traffic at the port. The Port Emergency Committees were set up at the principal commercial ports in the country before the war and have been vested by the Minister of Transport with wide powers for securing the most efficient operation of a port and the rapid clearance of goods through the port. The Regional Port Directors assumed their duties on Monday last, January 13. Mr. J. Gibson Jarvie has made his reputation in financial circles, and is well known in the City as the Chairman of the United Dominions Trust Limited. Mr. Robert Letch is the Assistant General Manager of the P.L.A.

Troop Canteens on Trains

Canteens for the troops are to be provided experimentally on L.M.S.R. trains running from London to Glasgow, beginning on Monday next. If the experiment proves successful, it is probable, we understand, that some 400 similar canteens will be made by converting railway carriages, for use throughout the country. The food and service are being supplied by the voluntary organisations connected with the Council of Voluntary War Work.

Shelter in Underground Stations

In addition to our weekly record of developments in connection with the provision of amenities for shelters in underground stations, we reviewed the progress to date in our issue of November 29 last (pages 579-580), and in the two subsequent weeks (December 6, pages 601-2, and December 13, page 626) dealt in greater detail with the special provisions for the maintenance of public health and for the issue of tickets. Since that time considerable progress has been made with the work which was then in hand, and the present month should see the completion of most of what remains to be done.

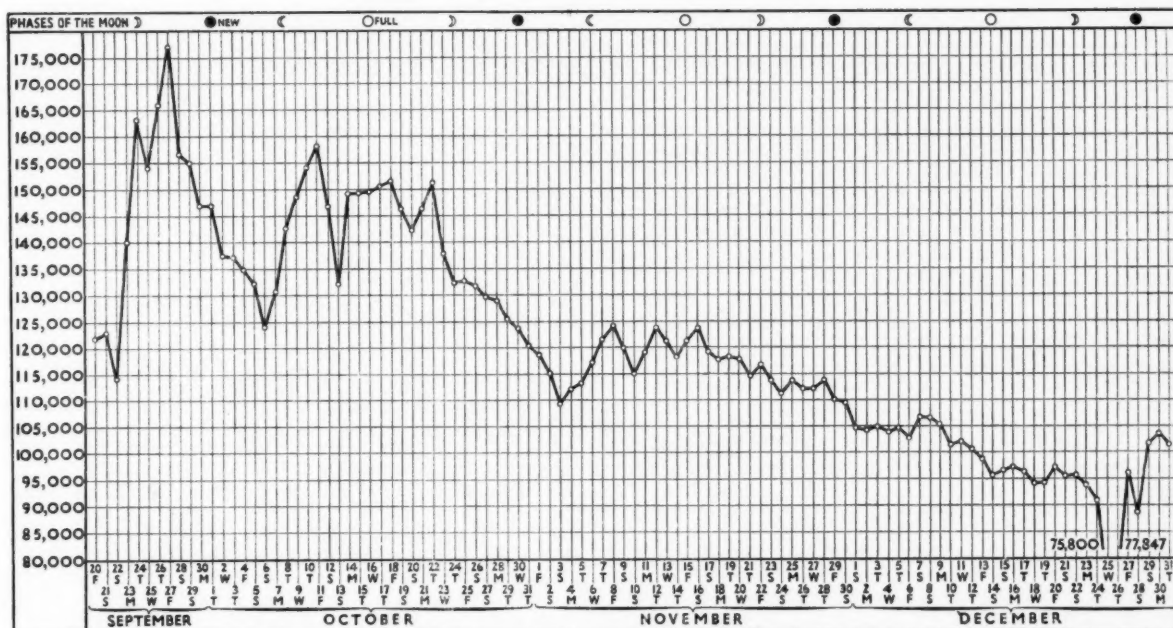
The average number of nightly shelterers on underground stations and at Liverpool Street and Bethnal Green sidings is 96,000, a considerable reduction on the average of two or three months ago. The daily average in October, for example, was 138,000, and this figure dropped to 116,000 in November. The highest number on any one night (September 27) was 177,500 and the lowest number on any one night (Christmas night) 75,800.

By courtesy of Mr. J. P. Thomas, the Special Officer of the London Passenger Transport Board for dealing with tube station shelter problems, we reproduce an illuminating graph, showing the day-to-day fluctuations in the totals of shelterers in tube stations. It will be noticed that phases of moon are indicated at the top of this graph, and that there is a noticeably close relationship between the peaks and troughs of the graph and a particular phase of the moon. The following notes summarise the position in relation to various aspects of the tube shelter problems.

REFRESHMENTS.—At the request of the Minister of Food, London Transport has extended its refreshment service to the siding tunnels at Liverpool Street station. There are now 122 canteens at 71 stations. The nightly volume of food consumed weighs about 7 tons.

MARSHALS AND RESERVATION OF PLACES.—Shelter marshals are on duty and the reservation of places by ticket is now in force at all stations. The queues which occurred at one time have been abolished. Shelterers go to their places in an orderly way and their conduct has so far been excellent. The tickets in issue number 90,000.

BUNKS.—At present 7,178 bunks to accommodate 21,534 people are on order for 71 stations. So far, 30 stations have



Estimated numbers of persons sheltering at tube stations in 1940, including the tube tunnel shelters at Aldwych, Bethnal Green, and Liverpool Street

been equipped, and the other stations are being equipped at the rate of three a day.

SANITATION.—To date 22 sewage-ejector plants have been installed. Contracts have been let for the installation of plants at all 71 stations by the end of this month. Contracts have been let also for the erection of permanent lavatory screens of concrete breeze blocks. The closets will be cubicles, fitted with doors. This work also will be completed by January 31.

MEDICAL AID POSTS.—Medical aid posts are now established at all stations. These posts are arranged on the lines of the model post at Notting Hill Gate station, which was approved by Lord Horder, and they are controlled by the local authorities and the Ministry of Health. Six contracts have been let for the erection of special screens for the posts. About two miles of concrete and pressed pulp wood will be needed to re-screen the medical aid posts and the lavatories.

DISINFECTING THE PLATFORMS.—The air at the stations is sprayed by hand, but experiments are being made with a system of spraying on a large scale through the air ducts by which the stations are ventilated. One experiment is being watched at Marble Arch by officials of the Ministry of Health. Another experiment is in progress at Bond Street station.

ENTERTAINMENT.—Programmes of recorded music, played on the platforms through portable amplifiers presented by the American Committee for Air Raid Relief, have been introduced recently and are stated to be much appreciated. One effect of these programmes is that on nights when the amplifiers are not working, families bring their own

portable gramophones. The playing of raucous music is discouraged, as shelterers go to the stations to rest and sleep and their wish is respected in the appropriate use made of gramophones and other instruments.

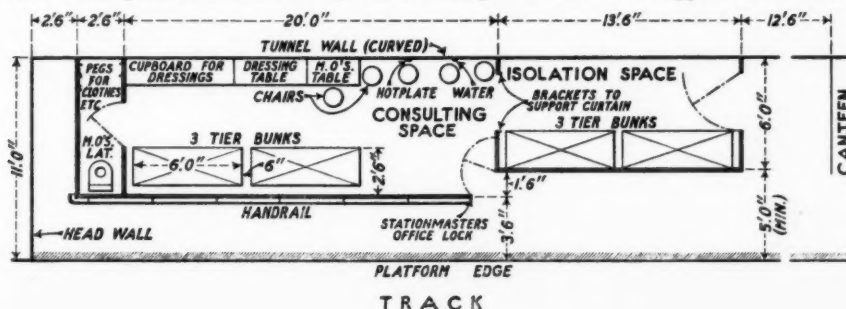
Reading libraries have been begun at three stations and are to be instituted at others.

Thought is being given to other ways and means of entertaining the shelterers. At some stations, where there is room, darts are played; at other stations, draughts, chess, and cards are played.

Half the shelterers are asleep by 9.30 p.m.; by 10.30 p.m. all are asleep.

Mosquitoes in the London Tubes

Among the 29 species of mosquito found in the British Isles is the *Culex Molestus* which, it has recently been discovered, can breed throughout the year in London at 100 ft. below ground. According to *The Lancet*, many persons using tube stations as sleeping quarters for air-raid shelters have been bitten by mosquitoes, and an investigation revealed the presence of many of these insects. The first supposition—that the trouble was due to a few stray mosquitoes prior to hibernation—was discounted when it was found that the females were without adipose tissue and thus were in no condition to settle down for the winter. A further search revealed the presence of males, and established the fact that breeding was in progress as late in the year as November. Many breeding grounds were soon found in such places as the spaces between the lines and under the platforms, where shallow stagnant pools of water are present. Temperature thus appears to be the critical factor on which hibernation



Left: Revised standard medical aid post for tube station platforms. The original arrangement adopted as a model was shown in the sketch we reproduced at page 602 of our December 6, 1940, issue

depends, and the number will be related to the extent of suitable breeding grounds and the blood available for feeding.

Until the tube stations were used as sleeping quarters for a large number of persons, the available blood donors were few and the reproductive rate small. Now the all-night residents supply an ample quantity of blood, the temperature is frequently above 70° F., and there is an absence of all natural enemies. Thus for the first time on record, continuous breeding of mosquitoes throughout the year is taking place. Little difficulty should be experienced in ridding the tubes of these pests by spraying with cresol or paraffin, and we understand that the London Passenger Transport Board has already taken steps in this direction.

London Transport Mobile Canteens for Y.M.C.A.

The members of sports and social organisations of London Transport have given a cheque of £2,090 to the Y.M.C.A. for the purchase of seven mobile canteens. The £2,090 has been raised by collections and donations from association funds and the profits from dances and boxing tournaments specially organised. Three of these vehicles were presented on January 10 at Mortlake garage by Mr. L. V. Hicks, Chairman of the Central Buses Sports Association, to Mr. H. W. Danbury, Chairman of the Metropolitan Union of Y.M.C.As., and Mr. R. F. Tollington, a member of the Y.M.C.A. National Council's war staff. A contingent of the London Transport Home Guard formed a guard of honour. The three canteens (two Morris 12 cwt., and one Bedford 12 cwt.) went into service immediately as units of the Y.M.C.A. fleet of over 500 vehicles which cover some 130,000 miles a week throughout England, Scotland, and Northern Ireland. Day and night they take refreshments to searchlight, balloon barrage, and ack-ack crews, military camps, Fighter Command, etc. Many of these are in lonely parts of the country which explains why such articles as razor blades, pencils, and hair oil are carried in addition to the usual canteen fare. As well as providing regular canteen service to the Forces and other war workers, these vehicles are sent at a moment's notice to take refreshments to civilians in bombed areas. Two London Transport canteens have already gone on active service, one presented by the Country Bus Sports Association and one by the Tram & Trolleybus Association. The delivery of two more is awaited, one to be presented by London Transport railwaymen and one by the building department and administrative staff.

Increase in Irish Channel Air Travel

The demand for accommodation on the air service between Dublin and Manchester at Christmas was considerably greater than that of 1939, necessitating the operation of extra services from December 16. For the week ended December 24, 1940, a total of 392 passengers was carried, which constitutes a new record, being 129 more than the 1939 total for the same period, itself a record. The greatest number of passengers ever carried in any one day by air between Great Britain and Eire was reached on Friday, December 20, 1940, when 87 persons flew home for Christmas. We are indebted to Aer Lingus Teóiranta, of Dublin, for this information.

Local Defence Force in Eire

On January 1 the Local Security Force (L.S.F.) in Eire became part of the Regular Army and its name was changed to the Local Defence Force (L.D.F.). Such changes as have had to be made are minor ones designed to bring the Force into conformity with military requirements, without affecting the voluntary basis of the organisation. The new Force retains the essential characteristics of the old L.S.F. and continues to be on a different footing to an army reserve. Enrolment for the L.D.F. is in the hands of the Garda authorities, who discharged this function for the L.S.F.

We are indebted to an Irish correspondent for pointing out that our statement on page 260 of our September 6, 1940, issue to the effect that the L.S.F. had adopted the same badge as the A.R.P. services was not quite correct. The L.S.F. badge had a black background with the letters C.A. (*Cosanta Aitiúla*), whereas the A.R.P. badge has a green background and the letters A.R.P. Our correspondent adds

that the organisation of the L.S.F. involves one group being taken under the control of the military and the other under the Garda Síochána for appropriate duties.

Indian Railways and the War

In his presidential address to the Indian Railway Conference Association, referred to on page 72. Mr. C. A. Muirhead, Agent & General Manager of the South Indian Railway, outlined the part to be played in the war by the Indian railways. It found them better prepared than in 1914, thanks to the period of prosperity after the last war having permitted of large sums being spent on new constructions, opening out alternative routes, remodelling of junctions, extensions of marshalling yards, modernisation of workshops, strengthening of tracks and bridges, improvements in working methods, and more powerful locomotives. But though the present equipment of the Indian lines might be sufficient to meet war transportation requirements, there were, nevertheless, various other factors which would necessitate the provision of additional freight-handling equipment. Not the least of them was the industrial expansion of the country, which would be given a great impetus during the war, especially in the production of munitions and other war equipment. Other industries would also spring up as a result of the suspension of supplies from overseas and consequent need for exploiting local resources; the effect of such rapid industrialisation on the movement of traffic must be great. Normal development of traffic and the possible abnormal traffic that might result from interruption of coastal shipping had also to be considered. All these conditions would necessarily impose a heavy strain on the transport capacity of all the railways, and it would be unreasonable to expect them to be able to handle this additional traffic without adequate equipment. A parsimonious policy of capital expenditure was, therefore, to be guarded against, despite the tendency to wartime economy. It would be a catastrophe if the railways were found unprepared and unable to deal with the situation.

Depletion of staff, and especially of supervising staff released for military service, was a handicap they had to face, and the railways might have to carry on with the officers' cadre reduced to a minimum. The release of skilled employees, in addition to those working on munitions in railway shops, would also be necessary, but at the moment, there was no fear of this affecting the efficiency of the railways, as care had been taken by the responsible authorities to keep up a steady stream of skilled and semi-skilled staff by the establishment or expansion of technical training facilities. In passing, Mr. Muirhead uttered a word of consolation to the many who were anxious to volunteer for active service, but could not be spared, by quoting the following statement by Sir Andrew Clow, made at the spring session of the conference: "The contribution which India can make is in a large measure conditioned by the smooth working of its railway system, and those rendering loyal service in all grades, from the highest to the lowest, should be able to feel that they were in some measure contributing to the ultimate victory."

The President said he mentioned these handicaps with which the railways were faced only to assure the Government that no sacrifice on their part would be considered too great. The part in the struggle to be played by the conference association was to enable the railways to meet such emergencies as now existed, by evolving schemes to obtain the maximum benefit from the equipment available. There was a host of problems to be solved such as the wagon pool—recently extended to cover most of the metre-gauge systems—the neutral control organisation, and improvements in wagon turn-round; and their solution was left to the I.R.C.A.; that was its contribution to the war effort.

Second B.B. & C.I.R. Spitfire

In continuation of the primary effort of the Bombay Baroda & Central India Railway in subscribing for the presentation of B.B. & C.I. Railway No. 1 Spitfire, recorded on page 550 in our issue of November 22 last, the administration has since announced that, on November 4, a further donation sufficient to provide a second Spitfire fighter for the Royal Air Force

was remitted to the home board for presentation to the Minister of Aircraft Production, who is being requested to name the plane *B.B. & C.I. Railway No. 2*. When it sent its first donation in September, the B.B. & C.I.R. was the first railway in the Empire to provide such a plane from subscriptions from its staff, which is justly proud of this further outstanding achievement.

The Railway War Planes Fund was opened early in July and up to date, and, apart from collecting nearly Rs. 1,50,000 for fighting planes, the staff has subscribed Rs. 14,000 for the Red Cross, Rs. 3,200 towards an ambulance, and invested more than Rs. 2,25,000 in Defence Loans. In addition to all this, work parties in every large railway centre had, by the end of October, made more than 4,500 articles, either knitted or sewn, as comforts for the troops.

Transport and Oil in Roumania

Mr. H. G. Austin, formerly Factory Representative in Roumania of the Oil Well Supply Co. Ltd., who returned from that country recently, addressed members of the Fuel Luncheon Club in London on January 8. Mr. Austin, who referred to a recent article he had contributed to *The Petroleum Times*, said that Roumanian oil production in 1939 had declined 30 per cent. from its 1936 peak, and would decrease more rapidly. Production figures in metric tons for the past few years were:—

1936 (peak production)	8,704,000
1937	7,150,000
1938	6,610,000
1939	6,240,000

Data for July last enabled a fairly accurate estimate of 5,750,000 tons for 1940 to be calculated, which was the equivalent of about 5,000,000 tons of oil products, most of the refining being done locally. Having occupied Roumania and laid hands on a potential output of 4,925,000 metric tons of oil products a year for their war needs, the Nazis now faced the problem of transport. In normal times oil products were exported from Roumania through Constanza and the Black Sea (85 per cent.), Giurgiu and the Danube (10 per cent.), and by rail at various points, principally Orasheni, Curtici, and Jimbolea (5 per cent.). The Constanza route was subject to blockade and, in addition to other difficulties, Germany was faced with the problem of finding sufficient storage for crude and refined products.

Much publicity had been given, soon after the occupation of part of Poland by Russia, to the export of oil to Germany by the railway leading from Ploeshti, via Buzau and Cernowitz to Orasheni, on the former Roumanian-Polish border. The Russians occupied Poland well west of Orasheni, and it was reported that Germany had come to an agreement with them whereby the line from Orasheni and Sniatyn, on the former Polish side of the frontier, would not be altered from the standard 4 ft. 8½ in. to the Russian 5 ft. gauge. A division of German troops was reported to have been permitted to enter Russian-occupied Poland to guard the railway line from Roumania to the point where it entered German territory. Long before the occupation by Russia of Bessarabia and Northern Bukovina, through which a section of the Ploeshti—Orasheni railway ran, the Roumanian oil journal gave official information indicating that this line was no longer used for oil railway transport.

The official figures for the period January 1 to March 31, 1940, showed that all rail exports to Germany were dutied at Curtici, which was the frontier point on the line leading from Ploeshti through the mountains at Predeal Pass, to Brashov, Sighisoara, Oradea Mare, and thence to Hungary. It amounted to 55,668 tons in all, of which 39,550 tons was petrol and 10,957 tons kerosene and white spirit. Exports to Germany by way of the Danube port of Giurgiu amounted to 17,909 tons—this at a time when the Danube was not entirely free from ice. No less than 823,507 tons of oil products in all were exported from Roumania during these three months, of which 674,878 tons were shipped through Constanza.

The Ploeshti—Poland line ran near Focshani, the centre of the recent earthquake shocks, and despite the fact that it traversed fairly flat country most of the way to Orasheni, the damage to the line must have been considerable. Although this line had not been used for transport of Roumanian oil to Germany during 1940, there was a possi-

bility that cereal exports to Germany might have gone by this route. It was a single line of limited capacity. The line from Ploeshti via Brashov to Hungary, which was apparently now the main oil railway route, was single track from Campina up through the hills to the frontier. Doubling from Campina to Brashov was begun in 1939, and although the tunnels through the section from the Predeal Pass down to the defile leading to Brashov had been completed this spring, many difficult sections in the narrow Campina—Sinaia defile and in the Sinaia—Predeal portion had not been started. The earthquake must have caused serious damage to bridges, tunnels, and the defile sections of this line.

There was a third railway leading out of Roumania, from Bucharest, via Piteshti, Craiova, Turnu-Severin, and Timisoara, to Jimbolea, on the Yugoslav frontier. In March of last year it had been apparent that the Germans were taking considerable quantities of cereal and other products out of Roumania on this route, which leads to Subotica, on the Hungarian-Yugoslav frontier, from which point lines to Italy, Austria, and Hungary lead. Many German wagons stood in every siding, and with the Curtici outlet temporarily blocked, the Germans might be forced to use the Yugoslav outlet for their oil trains, again on a single line, which, Mr. Austin considered, should not have been much damaged by the earthquake, as it led away from the centre of the shocks. The average Roumanian oil train consisted of 50 10-ton cars, drawn on the Brashov line by four locomotives on the heavy haul over the Carpathians. The Timisoara line also went through mountainous country both before and after touching the Danube at Turni-Severin.

The other outlet for Roumanian oil to Germany was by way of Giurgiu, the Danube river port, open only for nine or ten months each year on account of the ice conditions.

Tank Wagon Shortage Reported

According to a dispatch from the German frontier published in *The Times* of January 14, the total production of Roumanian crude oil in October, 1940, was 415,000 tons, against 523,000 for October, 1939, although borings had increased by 11 per cent. Roumania's oil export for the first nine months of 1940 was 2,700,000 tons, against 3,160,000 for the first nine months of 1939. This decline in export had been caused mainly by the blockading of the sea routes towards Germany, but it was also due in part to the internal political upheavals, the successive losses of territory, and the earthquakes. Exports to England in the first nine months of 1940 totalled 17.6 per cent. of the whole, whereas for the corresponding period of 1939 the proportion was only 13 per cent.; the amount Germany obtained declined from 1,250,000 tons, or 39.6 per cent. of the whole, in the first nine months of 1939 to 975,000 tons, or 36.1 per cent., for the same period in 1940. The oil that the Germans were unable to transport by sea routes could not be sent by rail mainly owing to the lack of tank wagons. Since the Iron Guard seized power and Germany occupied Roumania, no mineral oil has been sent to England, but Germany has not profited substantially by the change so far, as transport along the Danube is stopped by ice, and rail and road transport are hampered by floods, snow and sabotage. It was recorded in *THE RAILWAY GAZETTE* of January 10 that the Danube began to freeze on December 17. Recently some oilfields were forced to curtail heavily their production because, owing to lack of transport, all available oil reservoirs were filled up.

Transport in Belgium and Holland

News received from occupied territory reveals the frantic efforts made by the Germans from immediately after the invasion of the Low Countries to re-establish communication on the extensive systems of inland waterways. In June work was begun on several canals behind the invasion ports; in July traffic was resumed on the Ghent—Bruges—Ostend, Ghent—Terneuzen, and Nieuport—Dunkirk canals; during August the sections Brussels—Ghent and Charleroi—Brussels were successively brought into operation; in the first half of September shipping on the Meuse in Belgium was resumed; and in the second half of the same month the reopening of navigation on canals from Liège to Antwerp, on the Meuse into Holland, and on the Juliana canal, completed links with the rivers leading to the Dutch ports. In succeeding months the canals of the Seine—Oise system were reopened. All

connections by water with the ports of Brussels, Antwerp, Ghent, and Dunkerque from Belgium and Northern France were in operation by the beginning of December. The 100-mile Albert Canal between Liège and Antwerp was opened on Christmas Day, according to the German radio. The bursting of the banks near Hasselt prevented the opening more than a year ago, states Reuters. The canal can be used for vessels up to 2,000 tons. As reported before in these columns, the canals are being used extensively in order to relieve congestion on the railways and the heavy demands on the limited rolling stock available.

A German Order recently issued in the Low Countries requires the crews of all vessels engaged in inland navigation to load and unload cargo whenever no dock workers are available, and to sail and proceed on their journey, when required by the transport authorities, at all times, day or night, weekdays, Sundays, and holidays. This Order has been in force in Germany for some time, and its object is stated to be to secure the most efficient use of available inland shipping space.

The damage caused by the 18 days of *Blitzkrieg* in Belgium last May is estimated in a survey made by the Commissariat of Reconstruction in Brussels at more than £100,000,000. Destruction of railway communications and of approximately 6,000 miles of highways is stated to have reduced some districts almost to the level of feudal days. More than 100 railway depots were demolished and 1,455 bridges and tunnels blown up.

Inland Navigation in Occupied France

On the same general arrangement as in Belgium and Holland, the German authorities have sponsored the establishment of a central inland water transport organisation in France, called the Office National de la Navigation. Of 5,000 km. of waterways in occupied France, approximately 4,000 km. are in operation, and it is expected that the remainder will be available not later than February, 1941. Numbers of new barges measuring 340 tons are reported to be under construction, and about 1,000 of the barges sunk during the fighting in Northern France were found capable of being reconditioned.

Through Goods Traffic between Spain and Germany

Through goods traffic between Spain and Germany through France has been resumed via the Irun—Hendaye frontier stations. The trains are made up at Irun and Frankfort-on-Main respectively, and cross France sealed. Plans are also afoot to re-establish traffic between Spain and Germany via the Cerbère—Perpignan line, thus securing a shorter connection with Catalonia, the most industrialised region of Spain.

Remarkable A.R.P. Shelter at Stockholm Central Station

An extensive air-raid shelter, with a capacity of 2,000 persons, situated underneath Stockholm Central station, was opened early in October last. The cost of the shelter amounted to Kr. 630,000. The shelter consists of 16 rooms, apart from service rooms, etc. Each protective room has a capacity of

50 persons, and the area for a person is 6 sq. ft. The shelter has a power plant of its own, which is automatically switched on should there occur a break in the normal supply of current from outside sources. Each one of the various shelter rooms has an air-conditioning plant, which can also be operated by hand should the central control fail. A special signal has been devised for operation in case of fire. This bell signal is automatically released by the fire itself, or by the impact of a bomb, and the exact position of the fire is also shown on a special indicator situated in one of the corridors leading to the shelter. The shelter is not for the use of the general public, and no entrance is provided from the station square. Its use is reserved for passengers as well as for the personnel of the station and for the railway management. A specially protected room is provided for the General Manager from which the operation of the railways can be controlled and directed during the periods of acute danger. The Royal reception room at the Central station has been transformed into an A.R.P. dressing station.

"Essential Services" in Canada

Railways, tramways, canals, electric, gas, and water works, telephone and telegraph services, irrigation works, mines, and industries producing war materials or supplies, are automatically declared "essential services" under an amendment to the Defence of Canada Regulations. An undertaking declared an essential service obtains certain protection against trespassing and interference under the regulations. Previously a declaration had to be made before a particular undertaking became an essential service. As many applications were received to have works declared essential services, the Order-in-Council said, Justice Minister Lapointe believed essential services should be defined specifically in the regulations. In addition to the works named, works already declared essential services and others which may in future be so declared by the Governor-General-in-Council to be essential for the prosecution of the war, or to the life of the community, will be essential services under the regulations.

No Free Leave Transport in Canada

The Canadian Government has decided, after careful consideration, that it cannot provide free transport at present for soldiers going on leave. "In the present war the scale of pay and dependents' allowance is considerably in excess of that paid during the war of 1914-19," said Major C. G. Power, Associate Minister of National Defence. "Members of the Forces proceeding on ordinary leave are entitled to return tickets at single fare rates. I am not without the greatest sympathy for families who are widely separated on account of the fact that their sons and husbands are on active service, but at present we must all, perforce, subordinate our natural desires and inclinations to the exigencies of war services." Free transport was not provided during the war of 1914-19 for troops going on ordinary leave. Some men returning invalided from overseas were given free transport to visit their families before return to hospital for additional treatment, and free transport was provided for some men proceeding on harvest leave in 1915 and 1916.

Contracts and Tenders

The Peruvian Corporation has placed a contract with Beyer, Peacock & Co. Ltd. for 2 Consolidation-type passenger locomotives for the Central Railway of Peru.

Montreal Locomotive Works

Preliminaries for an extension to the plant of Montreal Locomotive Works—controlled by the American Locomotive Company—have begun and it is learned that plans in hand provide for a new building 800 ft. × 400 ft. Recent New York advices regarding the business of the American Locomotive Company indicated unexecuted orders in hand for the parent company

represented by a sum of approximately \$135,000,000, of which \$80,000,000 was stated to be allocated to the Canadian property. While no confirmation of this amount has been made in Canada, it is learned from Montreal that the company is receiving substantial orders for both tanks and gun carriages.

The South Indian Railway Co. Ltd. has placed the following orders, to the inspection of Messrs. Robert White & Partners:—

N. Hingley & Sons, Ltd.: 6 lengths of chain cable.

Birmingham Battery and Metal Co. Ltd.: 24 tons of copper rods, tubes, brass rods, and sheets.

Michael Nairn & Co. Ltd.: 1,350 sq. yd. of linoleum.

Thomas Terrins: 2½ tons of chains.

AIR RAID SHELTER HEATING.—The well known gas-fired and electrically-heated units manufactured by Controlled Heat & Air Limited which are largely in use for the heating of workshops and similar buildings have also proved suitable for heating all kinds of public air raid shelters, whether built on the surface or below ground level.

The company has prepared an explanatory leaflet giving all essential particulars of the gas-fired units, and details of both these units and the electrically heated model may be obtained on application to the registered office of Controlled Heat & Air Limited, Cornwall Road, Smethwick, near Birmingham.

Notes and News

Tees-side Transport Inquiry Committee.—Sir John Maxwell, C.M.G., Northern Regional Transport Commissioner, has decided to form a committee to inquire into transport problems with special reference to the Tees-side industrial area.

Highgate Station, London Transport.—On Sunday next, January 19, London Transport is to open to passenger traffic the deep-level station at Highgate, underneath Highgate station, L.N.E.R. The tube platforms have been used for many weeks past as an air raid shelter (see our November 29 issue, page 580).

Dislocation by Floods on New South Wales Railways.—A Reuters message dated January 8, from Sydney, states that, as the result of heavy rain throughout New South Wales, floods, covering a wide area, have washed away embankments and inundated more than 50 places on the western and north western sections of the railway system.

Bengal Doonars Railway Co. Ltd.—Notice is given in *The London Gazette* that, at an extraordinary general meeting held on January 2, a resolution was passed that the company should be wound up voluntarily. Mr. G. Anson Bayley, Mr. J. A. Tassie, and Mr. D. C. Wilson were appointed liquidators. The railway was taken over by the Government of India as from December 31, 1940.

Southern Railway Extension of Time Order.—Under the powers of the Special Enactments (Extension of Time) Act, 1940, the Minister of Transport has made the Southern Railway (Extension of Time) Order, 1940 (S.R. & O., 1940, No. 2135), extending by three years from October 1, 1940, the time as now limited by: (1) Section 31 of the Southern Railway Act, 1935, for the completion of (a) Railways Nos. 3, 4, 5, and 6 and Widenings Nos. 2, 3, 4, and 5 authorised by the London Brighton & South Coast Railway Act, 1903, and (b) the railway authorised by the Southern Railway Act, 1930;

(2) Section 8 of the Southern Railway Act, 1935, for the completion of Railway (No. 1) by that Act authorised; (3) Section 34 of the Southern Railway Act, 1937, for the acquisition of lands required for the Folkestone-Dover deviation railway.

Railroad Exhibit Building Accident.—It is reported from New York that four workmen were killed and three others seriously injured on January 2 as the result of the collapse of the ceiling covering the railroad exhibit building on the World's Fair ground, which the workmen were demolishing. The collapse occurred 10 minutes before the noon whistle would have called the men away from the danger area. The building covered an area of 17½ acres. All the exhibits had been removed.

G.W.R. Extension of Time Order.—The Minister of Transport has, under the Special Enactments (Extension of Time) Act, 1940, made the Great Western Railway (Extension of Time) Order, 1940 (S.R. & O., 1940, No. 2136), extending by three years the time as now limited for the compulsory acquisition of lands in connection with the construction of Railway No. 1 and Railway No. 2 authorised by Section 5 of the Great Western Railway Act, 1937. The first is the continuation between Ruislip and Denham of the extension of the Ealing & Shepherds Bush Railway. The second is a variation and a small extension, authorised in 1937, of the deviation line near Dawlish sanctioned by the Great Western Railway (Additional Powers) Act, 1936.

Railway Accidents on the Continent.—Reuters reports a collision between two trains near Arad, Roumania, in which six persons were killed, during the Christmas holidays. When a goods train and an excursion train were in collision on December 30 between Nennhansen and Rathenow, on the Berlin-Hanover line of the German State Railway, five persons were killed. On December 31 two persons lost their lives in a collision between an express from Calabria and a stationary train at Cisterna on the Italian State Railways. Five persons were killed when a passenger train collided with a goods

train on the Belgian National Railways near Charleroi on January 6. It was reported on January 6 that 20 soldiers were killed in a train wreck near Berettya-Ujfalú, south-west of Debreczen, Hungary. Two accidents are reported from Spain, one on January 11, when a goods train was derailed on a bridge at Benicarlo, near Valencia, causing six deaths; the other on January 12, at Caparete, in the province of Teruel, when four railwaymen were killed in a buffer stop collision.

British and Irish Railway Stocks and Shares

Stocks	Highest 1940	Lowest 1940	Prices	
			Jan. 14, 1941	Rise Fall
G.W.R.				
Cons. Ord.	52	22½	36	+2
5% Con. Pref.	103½	58	87	+1
5% Red. Pref. (1950) ..	105½	88	97½	—
4% Deb.	107½	90½	105½	+½
4½% Deb.	108½	96½	108	—
4½% Deb.	114½	96	113½	—
5% Deb.	124½	106	121½	—
2½% Deb.	66½	57	61	—
5% Rt. Charge	117½	97	117	+1½
5% Cons. Guar.	117	90½	113	—
L.M.S.R.				
Ord.	24½	9	15	+1
4% Pref. (1923)	60½	21½	40	+1½
4% Pref.	70½	35	54½	+3
5% Red. Pref. (1955) ..	94½	60	76½	—
4% Deb.	101½	81	100½	—
5% Red. Deb. (1952) ...	109½	102	108	—
4% Guar.	93½	65	88	+2
L.N.E.R.				
5% Pref. Ord.	8½	1½	3	—
Def. Ord.	4½	1½	1½	—
4% First Pref.	60	20	37½	+3
4% Second Pref.	22½	6½	12	+1
5% Red. Pref. (1955) ..	80	34½	53½	+3½
4% First Guar.	86½	56	77	+1
4% Second Guar.	77½	37	62	+1
3% Deb.	73½	54½	70½	+1
4% Deb.	97½	74	93	+1
5% Red. Deb. (1947) ...	107	96½	103	—
4½% Sinking Fund Red. Deb.	104	98	100½	+1
SOUTHERN				
Pref. Ord.	79	34	51½	+5
Def. Ord.	22½	7	11½	+½
5% Pref.	104½	58½	85½	+1
5% Red. Pref (1964) ...	105	85	89½	—
5% Guar. Pref.	116½	90	114	+1
5% Red. Guar. Pref. (1957) ..	114½	94	109½	—
4% Deb.	106½	84½	105½	—
5% Deb.	122½	100	119½	—
4% Red. Deb. (1962-67) ..	106	96½	100½	—
4% Red. Deb. (1970-80) ..	106½	93	101½	—
FORTH BRIDGE				
4% Deb.	95½	87	86½	-1
4% Guar.	93½	81½	84½	—
L.P.T.B.				
4½% "A"	116	103	110½	+1
5% "A"	121½	107	116	—
4½% "T.F.A."	105½	101	102½	—
5% "B"	116	102	105	+1
"C"	65½	24	33	—
MERSEY				
Ord.	26	18½	22½	+1
4% Perp. Deb.	92½	86½	91½	—
3% Perp. Deb.	68	63	60½	—
3% Perp. Pref.	57	50½	54½	—
IRELAND				
BELFAST & C.D.				
Ord.	4	3	4	—
G. NORTHERN				
Ord.	4½	1½	3	—
G. SOUTHERN				
Ord.	12½	4	6	+1
Pref.	15½	6	9	-3½
Guar.	36	15	20	+4
Deb.	55½	40	50	+8

Irish Traffic Returns

IRELAND		Totals for 1st Week			Totals to Date		
		1941	1940	Inc. or Dec.	1941	1940	Inc. or Dec.
Belfast & C.D. (80 miles)	pass. goods total	£	£	£	£	£	£
				(Returns not to hand)			
Great Northern (543 miles)	pass. goods total	11,800	10,300	+ 1,500	11,800	10,300	+ 1,500
		12,200	8,900	+ 3,300	12,200	8,900	+ 3,300
		24,000	19,200	+ 4,800	24,000	19,200	+ 4,800
Great Southern (2,076 miles)	pass. goods total	34,306	31,571	+ 2,735	34,306	31,571	+ 2,735
		52,235	41,876	+ 10,359	52,235	41,876	+ 10,359
		86,541	73,447	+ 13,094	86,541	73,447	+ 13,094
L.M.S.R. (N.C.C.) (247 miles)	pass. goods total	6,440	3,890	+ 2,550	6,440	3,890	+ 2,550
		4,460	2,820	+ 1,640	4,460	2,820	+ 1,640
		10,900	6,710	+ 4,190	10,900	6,710	+ 4,190

Railway Stock Market

With some improvement in telephonic communication in the City, business on the Stock Exchange has tended to be more active, and in most sections, security values were higher on balance. In many instances, however, this was due in a large measure to absence of selling and also to the fact that many stocks and shares remain very firmly held and are consequently not in large supply in the market. After developing a slightly easier trend, British Funds showed resumption of the upward movement, following the announcement of the requisitioning of further American securities. It is, of course, expected that a good proportion of the proceeds from the latter will be re-invested in gilt-edged and high class investment stocks. Possibly this may stimulate better demand for home railway debentures, yields on which continue to be regarded as attractive. On balance for the week, however, improvement in the prior charges has been very moderate. Chief attention has been given to the junior stocks, in which there has been a revival of speculative interest because of more hopeful views as to the dividend statements on February 19. The market is now suggesting that dividends may be the same as for

1939, which it may be recalled, were slightly better than would have been possible on the minimum guaranteed revenues. The latter would permit of 3 per cent. on Great Western ordinary, and 1 per cent. on both Southern deferred and L.M.S.R. ordinary. It may be prudent not to budget for higher payments than these, because a more conservative policy may be followed on this occasion, bearing in mind uncertainty as to the basis of the special war damage insurance scheme for the railways and the future revision of the financial agreement with the Government. On the basis of the above-mentioned dividends, however, yields would still be substantial, and it is possible that market hopes of dividends at the 1939 rates may be realised.

Although home railway junior stocks have not held best prices touched in the past few days, good gains have been shown on balance. Great Western ordinary, for instance, was 36, compared with 34½ a week ago. Great Western preference stock improved from 86½ to 88, and the guaranteed stock was a point higher at 114, but the 4 per cent. debentures remained at 106. L.M.S.R. ordinary has risen from 13½ to 14½; the senior preference from 52 to 54; and the 1923 prefer-

ence from 38½ to 40; while the guaranteed stock was 88½, compared with 87 a week ago. Moreover, L.M.S.R. 4 per cent. debentures were better at 101½. As regards Southern issues, the preferred attracted attention because of the large yield, and moved up from 47½ to 51½; the deferred from 10½ to 11½, and the preference stock from 84½ to 86, but the guaranteed stock was only fractionally better at 114, and the debentures were unchanged at 106. L.N.E.R. 3 per cent. debentures, however, improved slightly to 70½, and the 4 per cent. debentures were a point better at 93, the yields having attracted buyers. L.N.E.R. guaranteed issues also bought in view of the good yields, and the firsts were 78, compared with 76½ a week ago, and the seconds moved up two points to 62½. L.N.E.R. first preference improved from 35½ to 37; the second preference was a point better at 12, speculative interest in the latter having tended to increase on market hopes that a dividend of 1 per cent. may be possible for the past year. London Transport "C" remained at 32½. Argentine railway securities made some response to the better trend on the Stock Exchange, but this was again confined mainly to the debentures.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1940-41	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to Date			Shares or Stock	Prices				
			Total this year	Inc. or Dec. compared with 1932		Totals		Increase or Decrease		Highest 1940	Lowest 1940	Jan. 14, 1941	Yield % (See Note)	
						This Year	Last Year							
South & Central America														
Antofagasta (Chili) & Bolivia	834	5.1.41	£ 14,340	— £ 1,700	1	£ 14,340	£ 16,040	— £ 1,700	Ord. Stk.	11½	3½	5	Nil	
Argentine North Eastern ...	753	4.1.41	ps. 97,400	— ps. 22,900	27	ps. 4,251,700	ps. 4,396,100	— ps. 144,400	Ord. Stk.	3½	1	2	Nil	
Bolivar ...	174	Dec. 1940	2,700	— 1,301	52	45,200	51,531	— 6,331	6 p.c. Deb.	6	5	6½	Nil	
Brazil ...	...	...	...	...	...	...	...	...	Bonds	8	5	1	Nil
Buenos Ayres & Pacific	2,801	4.1.41	ps. 1,489,000	+ ps. 171,000	27	ps. 31,852,000	ps. 33,373,000	— ps. 1,521,000	Ord. Stk.	4½	—	2	Nil	
Buenos Aires Central ...	190	16.11.40	877,400	— 812,600	20	81,853,200	82,210,300	— 357,100	Ord. Stk.	—	—	—	Nil	
Buenos Ayres Great Southern	5,082	4.1.41	ps. 2,181,000	— ps. 385,000	27	ps. 52,998,000	ps. 56,278,000	— ps. 3,280,000	Ord. Stk.	10½	3	5	Nil	
Buenos Ayres Western ...	1,930	4.1.41	ps. 663,000	— ps. 70,000	27	ps. 18,398,000	ps. 19,936,000	— ps. 1,538,000	"	8½	2	4	Nil	
Central Argentine ...	3,700	4.1.41	ps. 1,419,800	— ps. 91,600	27	ps. 37,681,950	ps. 49,498,350	— ps. 11,816,400	"	8½	2	3	Nil	
Do. ...	...	...	...	...	...	...	...	...	Dfd.	3	—	—	Nil
Cent. Uruguay of M. Video	972	4.1.41	22,255	+ 962	27	553,129	518,819	+ 34,310	Ord. Stk.	4	½	1½	Nil	
Costa Rica ...	188	May 1940	17,282	— 7,020	48	193,339	245,516	— 52,177	Ord. Stk.	23½	14	16½	12½	
Dorada ...	70	Nov. 1940	11,800	— 1,900	48	134,200	150,400	— 16,200	1 Mt. Db.	99	97½	98	6½	
Entre Rios ...	810	4.1.41	ps. 160,400	— ps. 51,500	27	ps. 5,936,700	ps. 6,793,700	— ps. 857,000	Ord. Stk.	4	1½	1½	Nil	
Great Western of Brazil	1,016	4.1.41	10,400	— 800	1	5,600	10,000	+ 4,400	Ord. Sh.	4/-	1/-	—	Nil	
International of Cl. Amer.	794	Sept. 1940	\$325,789	— \$37,196	39	\$4,405,419	\$4,486,381	+ \$80,962	Ord. Stk.	—	—	—	Nil	
Interoceanic of Mexico	...	...	...	...	...	...	...	...	1st Pref.	9d.	9d.	—	Nil
La Guaira & Caracas...	22½	Dec. 1940	4,730	— 2,455	52	77,230	74,961	+ 2,269	"	6	4	—	Nil	
Leopoldina ...	1,918	4.1.41	18,988	— 2,751	1	11,138	13,107	+ 1,969	Ord. Stk.	2½	½	—	Nil	
Mexican ...	483	7.10.40	ps. 270,900	— ps. 300	14	ps. 3,816,500	ps. 3,954,000	— ps. 137,500	"	2 1/12	—	—	Nil	
Midland of Uruguay...	319	Oct. 1940	12,058	+ 3,732	17	45,052	34,464	+ 10,588	"	—	—	—	Nil	
Nitrato ...	386	31.12.40	8,677	+ 4,616	52	175,723	172,419	+ 3,304	Ord. Sh.	2½	1½	18	7½	
Paraguay Central ...	274	4.1.41	\$2,470,000	— \$740,000	27	\$90,634,000	\$88,132,000	+ \$2,502,000	Pr. Li. Stk.	41	36	36	16½	
Peruvian Corporation	1,059	Dec. 1940	64,856	— 2,585	26	393,325	383,935	+ 9,390	Pref.	4	1	—	Nil	
Salvador ...	100	2.11.40	£7,687	— £925	18	£158,338	£174,282	+ £15,944	Ord. Stk.	50	23	27½	9½	
San Paulo ...	153½	29.12.40	34,375	+ 6,486	52	1,875,683	1,699,269	+ 176,414	Ord. Sh.	15 1/12	—	—	9½	
Taltal ...	160	Nov. 1940	4,615	+ 1,860	22	13,933	10,540	+ 3,395	Ord. Stk.	8	—	—	Nil	
United of Havana ...	1,353	4.1.41	15,536	+ 2,091	27	400,622	461,079	+ 60,457	Ord. Stk.	—	—	—	Nil	
Uruguay Northern ...	73	Oct. 1940	1,271	+ 301	17	4,159	3,654	+ 505	"	—	—	—	Nil	
Canada														
Canadian National ...	23,695	31.12.40	1,508,892	+ 412,771	52	49,471,108	40,728,667	+ 8,742,440	Perp. Dbs.	86	68	86	4½	
Canadian Northern ...	...	...	...	...	...	...	...	...	4 p.c. Gar.	105½	95½	103½	3½
Grand Trunk ...	...	...	...	...	...	...	...	...	Ord. Stk.	9½	4½	8	Nil
Canadian Pacific ...	17,153	7.1.41	628,000	+ 141,200	1	628,000	486,800	+ 141,200	"	—	—	—	Nil	
India														
Assam Bengal...	1,329	30.4.40	45,187	+ 6,529	4	135,060	120,437	+ 14,623	Ord. Stk.	99½	71	99	3	
Barsi Light ...	202	20.11.40	3,405	+ 2,760	32	102,105	75,562	+ 26,543	"	283	234	255	6½	
Bengal & North Western	2,091	Nov. 1940	258,900	+ 38,081	10	494,325	421,197	+ 73,128	Ord. Stk.	218½	195	225	5½	
Bengal Doars & Extension	161	Sept. 1940	14,625	+ 508	26	78,405	66,243	+ 12,162	"	96	83½	96½	4½	
Bengal-Nagpur ...	3,269	31.10.40	258,450	+ 51,860	29	4,963,715	4,495,671	+ 468,044	"	108	99	107½	5½	
Bombay, Borda & India	2,986	20.12.40	298,500	+ 4,200	38	6,989,775	6,343,425	+ 646,350	"	104	97½	101½	7½	
Madras & Southern Mahratta	2,967	10.11.40	150,900	+ 15,183	30	3,634,591	3,435,029	+ 199,562	"	284	238	255	6½	
Rohilkund & Kumaon	571	Nov. 1940	46,125	+ 2,363	10	89,625	81,517	+ 8,108	"	93½	83	87½	5½	
South Indian ...	2,542	10.11.40	104,047	+ 7,106	30	2,796,353	2,516,305	+ 280,048	"	—	—	—	Nil	
Various														
Beira ...	204	Sept. 1940	73,186	—	52	905,968	—	—	Pref. Sh.	7/10½	—	—	Nil	
Egyptian Delta ...	623	30.9.40	7,602	+ 1,784	26	89,819	94,881	+ 5,062	"	88	80	82½	4½	
Kenya & Uganda ...	1,625	...	—	—	—	—	—	—	B. Deb.	53	44½	46½	7½	
Manila ...	...	...	—	—	—	—	—	—	Inc. Deb.	88	80	82½	4½
Midland of W. Australia	277	July 1940	11,397	+ 139	4	11,397	11,258	+ 139	"	—	—	—	—	
Nigerian ...	1,900	26.10.40	31,270	+ 7,575	30	1,059,899	874,277	+ 185,622	"	—	—	—	—	
Rhodesia ...	2,442	Sept. 1940	482,182	—	52	4,910,860	—	—	"	—	—	—	—	
South Africa ...	13,287	7.12.40	741,534	+ 46,776	36	24,759,861	23,268,622	+ 1,491,239	"	—	—	—	—	
Victoria ...	4,774	Aug. 1940	888,289	+ 190,022	9	1,756,717	1,383,157	+ 373,560	"	—	—	—	—	

Note. Yields are based on the approximate current prices and are within a fraction of ½%. Argentine traffic is now given in pesos.
 * Quotation is of June 17, 1940; dealings subsequently prohibited. † Receipts are calculated @ 1s. 6d. to the rupee.